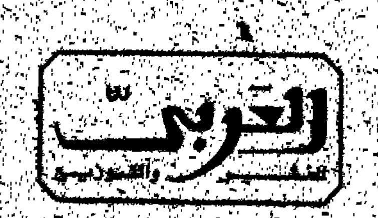
مستخلصات رسائل الدكتوراه السعودية

إعداد كمال محمد علي
تقديم د. سيد حسب الله



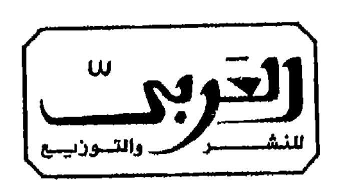




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مستخلصات رسائل الدكتوراه السعودية

إعداد كمال محمد علي
تقديم د. سيد حسب الله

المطبعة العربية الحديثة
٨ شارع ٤٧ بالمنطقة الصناعية بالعباسية
القاهرة



تقـديم

تختلف أوعية الفكر باختلاف الأفكار التى تحويها ، وأسلوب عرضها ، والغرض منها . فقديما كانت الأحجار وسفوح الجبـال كوعاء لنقل المعلومات والأفكار ، ثم هناك ألواح الطين المصنفة والمرتبة على رفوف ، وهناك البرديات المطوية والمحفوظة فى جرار ، ثم جاء عصر أوعية الفكر التقليدية ، فكانت الكتب المطبوعة التى تهتم بها المكتبات العامة ، ثم الدوريات التى تهتم بها المكتبات الجامعية تبعا لتخصصها ، وهناك الرسائل الجامعية التى تهتم بها المكتبات المتخصصة واجهزة البحوث .. ثم تأتى الأوعية غير التقليدية ، ومنها الأوعية الصوتية والضوئية منفصلين أو مرتبطين ، وأخيرا الأوعية الالكترونية ، وقد اهتمت بها بنوك ومراصد المعلومات .

وما يهمنا فى هذه التقدمة هو « الرسائل الجامعية » كوعاء من أوعية الفكر ، ولا يخفى على اى باحث أو متخصص قيمـة هـذا الوعاء ، من حيث احتوائه على اضافات جديدة للمعرفة فى مختلف فروعها وتخصصاتها العامة والدقيقة ، ومن حيث جدية المعلومات الموجودة به ، وملاءمتها للبيئة والمجتمع الذى اجريت فيه البحوث ، مما يجعلها من أهم أوعية الفكر للباحث الجاد ، وللعالم الذى يريد أن يطلع على كل جديد ، وللتكنولوجى الذى يريد أن يخطط لتطبيقات جديدة فى مجال تخصصه .

واذا كانت المجتمعـات الغربية فى البـلاد التى سبقتنا فى مضـمار التوثيق الببليوجرافى ، قد أولت هذا الوعاء من أوعية الفكر أهمية خاصة ، بحيث أصـبح لديهـا مرصدا ببليوجرافيا او أكثر ، كى يتيح للهيئـات والباحثين الحصول على معلومات ببليوجرافية ومستخلصات لرسائل الدكتوراه المختزنة به ، بل ويقدم خدمة أخرى هى اتاحة نفس رسائل الدكتوراه ، اما بتصوير عادى ، أو على هيئة مصغرات فيلمية (ميكروفيلم) أو مصغرات بطاقية (ميكروفيش) ، فاننا فى العالم العربى ما زلنا فى بداية الطريق .

وكمثال على تلك المراصد الببليوجرافية الموجودة فى الغرب يمرصد (الاتاحة المباشرة للمعلومات المصدرية) « امبارية » (Direct Acess to Reference Information : DATRIX من انشاء زيروكس لميكروفيلم الجامعات: Xerox University Microfilms التى أسست فى عام ١٩٣٨ ، كى تتيـح للهيئـات والبـاحثين الحصول على المواد والمطبوعات النادرة التى نفذت من الأسواق ، وقد كانت فى البداية مشروعا محدود الامكانيات ، ثم اشترته فى أواخر الستينيات شركة زيروكس فتحول الى شـبكة عملاقة لخدمات المعلومات . والخدمة الرئيسية التى يقدمها الآن هى تجميع رسائل

الدكتوراه ، وتكشيفها ، واعداد المستخلصات لها ، ثم نشرها فى مستخلصات الرسائل الجامعية « مسترية DAI » Dissertation Abstracts International التى تعتبر المقابل المطبوع لـ « امبارية » .

ويقوم « امبارية » باختزان معلومات ببليوجرافية ومستخلصات لرسائل الدكتوراه التى تمنحها جامعات أمريكية منذ عام ١٩٣٨ الى الآن ، كما يجرى حاليا تغطية الرسائل الممنوحة من جامعات كندا وأوربا ، كما يجرى حاليا اضافة الرسائل الخاصة بالأعوام ١٨٦١ — ١٩٣٧ . والبحث خلال مختزنات « امبارية » متاح فى University Microfilms ، كما أن النص الكامل لأى رسالة جامعية متاح هو الآخر اما بتصوير عادى ، أو على هيئة مصغرات فيلمية .

و « امبارية » يعتبر مرصد عملاق ، اذ يضاف سنويا اليه حوالى (٣٠,٠٠٠) رسالة دكتوراه ، وتتكون هذه الاضافات — بصفة رئيسية — من الرسائل التى تمنحها جامعات الولايات المتحدة الأمريكية ، وبصفة — غير رئيسية — من الرسائل التى تمنحها جامعات كندا وأوربا . ويتم حصول « امبارية » على هذه الرسائل كنوع من التعاون بين الجامعات .

ويمكن البحث فى « امبارية » بالمؤلف ، والمعهد الذى منح الدرجة العلمية ، والكلمة المفتاحية فى العنوان ، والدرجة الجامعية الممنوحة ، وسنة منح الدرجة الجامعية ، والرقم المثبت فى مستخلصات الرسائل الجامعية « مسنزيه » ، ويتم الاضافة اليه شهريا .

اما الخدمات التى يقدمها « امبارية » فانه يصدر ثلاثة مطبوعات هامة ، هى « مسترية DAI » ، وهى دورية شهرية تصدر فى جزئين ، الأول : عن مستخلصات الرسائل الجامعية الخاصة بالعلوم الاجتماعية والانسانية ، والثانى : خاص بالعلوم الهندسية . وترصد الاضافات الجديدة فى هذه الدورية تحت رؤوس موضوعات محددة ، وتكشف بالمؤلف ، وبكلمات مفتاحية مأخوذة من العنوان . وتحتوى كل مادة على معلومات ببليوجرافية تشمل : المؤلف ، والعنوان ، والجامعة ، والدرجة العلمية الممنوحة ، والرقم الخاص بالحصول على صورة كاملة للرسالة ، ومستخلص يتكون من حوالى (٦٠٠) كلمة .

وأما المطبوع الثانى فهو « رسائل الدكتوراه الأمريكية » American Doctoral Dissertation ، وهو مطبوع سنوى يغطى رسائل الدكتوراه الخاصة بجامعات أمريكا الشمالية فى السنة السابقة للنشر ، ولا يحوى هذا المطبوع مستخلصات . وهو متاح منذ عام ١٩٥٥ ، على مصغرات فيلمية ، أو بتصوير الزيروكس .

والمطبوع الأخير خاص بمستخلصات رسائل الماجستير Master Abstracts and Theses ، ويصدر أربع مرات فى العام ، ويشبه فى ترتيبه وتنظيمه

« مستخلصات الرسائل الجامعية العالمية » وهو متاح منذ عام ١٩٦٢ . ويتيح « امبارية » معظم هذه الرسائل الجامعية على هيئة مصغرات فيلمية ،كما يقدم استشارات فى مجال التكشيف والاستخلاص لمن يطلبها .

أردت من هذه الدراسة السريعة لمرصد « امبارية » القول بأن الغرب قد سبقنا فى توثيق هذا النوع من أوعية الفكر ، ليس فقط توثيقا تقليديا ، انما توثيقا الكترونيا باستخدام الحسّاب . واتاحة المختزنات مباشرة On - line خلال مؤسسات المعلومات التجارية مثل لوكهيد Lockheed وشتنظم «SDC» . وهذا أمر طبيعى نظرا لتقدم البحوث لديهم وكثرتها وتعقدها وتشابكها ، مما يستدعى البحث ـ باستمرار ـ عن وسائل أسرع وأدق للوصول الى معلومات ببليوجرافية عنها ، أو للوصول الى المعلومات التى تحويها .

ونحن فى العالم العربى ما زلنا فى بداية الطريق ، وقد وضع الزميل والصديق الأستاذ كمال محمد على يده على المشكلة ، ورأى أن هذا الوعاء من أوعية الفكر ـ رغم أهميته ـ لم يلق الاهتمام الكافى من الموثقين والببليوجرافيين العرب . ومن هنا كانت تلك البداية بأن يبدأ بتوثيق الرسائل الجامعية فى المملكة العربية السعودية حيث أتيح له أن يلم بأطراف هذا الموضوع الحيوى . آمل أن تكون خطوته بداية تتبعها أعمال ببليوجرافية توثيقية أكبر بحيث يتسع الامتداد الجغرافى ، فيشمل البلاد العربية جميعها ، والنطاق الزمنى فيكون هناك منطلق أمامى ومنطلق خلفى ، والجانب اللغوى فيكون هناك توثيق لما أنتج باللغة العربية وغيرها من اللغات . نسأل الله أن يفيد بهذا العمل أمتنا العربية والاسلامية ، انه سميع مجيب الدعاء .

د. سيد حسب الله



بسم الله الرحمن الرحيم

مقدمة

لقد تقدم العالم لأن مصادر معلوماته منظمة ولأن الباحث يجد ضالته فى وقت يسير وجهد أقل فى توفير عناء البحث عن المـادة وفى عصر السرعة لابد من التطور والتقدم والانجاز حتى تلحق الدول النامية بالدول المتقدمة .

وحيث أن الرسائل العلمية خاصة الدكتوراه تعتبر عادة من ارفع المستويات للانتاج الفكرى فى أى بلد من البلدان .

وحفاظا على التراث العلمى العربى لابد من حصر شامل ودقيق لهذه الرسائل فى دليل ببليوجرافى يغطى المملكة العربية السعودية .

لذا يسرنا أن نقدم للباحثين الكرام دليل مستخلصات رسائل الدكتوراه التى حصل عليها الأساتذة السعوديين الأجلاء حتى عام ١٣٩٨ هـ .

ونحن اذ نقدم هذا الدليل الذى لم يحصر الرسائل فقط ولكن أورد مستخلص لكل رسالة ليلقى الضوء على موضوع الرسالة ومحتوياتها وما قدمته من جديد فى بحر المعرفة الزاخر .

وبادىء ذى بدء نقدم وافر الشكر لأصحاب المعالى والسعادة الذين تفضلوا مشكورين بالمعاونة فى ارسال نسخ من أطروحاتهم كذلك نتوجه بخالص المودة والعرفان للملحقيين التعليميين بسفارات المملكة العربية السعودية بالخارج على ما بذلوه من تعاون فى هذا المجال ولقد صادف هذا الجهد بعض الصعاب فى الحصول على المعلومات عند الاتصال بالأفراد والهيئات العلمية شخصيا وبالكتابة اليهم أكثر من مرة اذ تبين أن معظم اصحاب الرسائل قد تغيرت أماكن اقامتهم وانتقلوا الى مناصب أخرى .

ولقد آثرنا ان نستكمل بعض المواد من المراجع المختلفة مثل :

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وعند ترتيب هذه المواد اتبعنا المنهج العلمى الآتى :

* قسمت الرسائل موضوعيا ورتبت داخل كل موضوع بأسماء اصحاب الرسائل هجائيا .

هذا وقد تم تجميع المواضيع المتقاربة تحت رأس موضوع واحد بالرغم من اختلاف تصنيفها العشرى العالمى مثل :

الاقتصاد وادارة الأعمال وكذلك اللغة والأدب .

* وقد أدرج المدخل تحت اسم صاحب الرسالة (اسم العائلة) طبقا للنظام الأجنبى الدولى .

ثم عنوان الرسالة واسم الجامعة وتاريخ نشر الرسالة وأرقام الصفحات (ولم تذكر بعض الأرقام فى الرسائل التى لم يتم الحصول على أصولها) .

* يوجد رقم أمام كل رسالة حتى يسهل الاستدلال من الكشافات المساعدة على عناوينها ومواضيعها .

وقد استخدمت مقدمات ومداخل بعض الرسائل التى لم تحتوى على مستخلصات . ويجدر القول أن استبعادنا لنشر رسائل الماجستير مع هذا المجلد اكتفاء برسائل الدكتوراه التى سنوالى ان شاء الله متابعتها عن الأعوام التى تليها لتنشر فى ملاحق منفصلة او يضمها مجلد كل فترة زمنية لتغطية الأعوام الباقية وكذلك باقى الرسائل التى لم يجد أصحابها الفرصة عند اصدار هذا المجلد .

ونود أن نشير هنا الى بعض الاحصاءات البيانية عن هذه الرسائل ، ان نسبة اللغات الأجنبية الى العربية ٩ : ١ كما أن بعض العلوم تطغى على انواع اخرى مثل الكيمياء وبعض أنواع المعرفة لم يكن لها نصيب يذكر .

كذلك نجد ان نسبة الجامعات الأمريكية الى مثيلتها الأوربية والعربية :

الشرقية (٥٠ر٪) الأوربية بما فيها انجلترا (٤٦ر٪) الأمريكية (٤٩ر٪)

والغرض من نشر هذا العمل يهدف الى الدراسة المتأنية من السادة العلماء والباحثين الذين يسيرون على الدرب حتى يتجنبوا التسجيل فى مواضيع سبق مناقشتها وكذلك يطرقوا فترات تاريخية معينة استكمالا لأزمنة وردت .

وقد يرى المسئولون لهذا المسح الببليوجرافى فائدة عند حصر الكفايات العلمية بالمملكة للتركيز على مواضيع معينة تهم الخطة الطموحة التى تسير عليها المملكة سواء من الناحية الاقتصادية أو التعليمية او الاجتماعية .

واذا نظرنا الى الرسم البيانى الذى تتدرج به أرقام المواضيع التى تناولتها هذه الرسائل التى يضمها هذا المجلد نجد أن الكيمياء اخذت نصيب الأسد تليها التربية والتعليم فالاقتصاد والهندسة ثم علم طبقات الأرض وهكذا حتى احتلت كل من علوم المكتبات والاتصال الجماهيرى وعلم النفس رسالة واحدة لكل .

نرجو أن يحظى عملنا هذا تقديركم كما نأمل أن نسمع منكم الملاحظات مع موافاتنا باقتراحاتكم القيمة حتى نأخذ بها فى الطبعات القادمة ان شاء الله .

كمال محمد على

الكشـــافات

الدين

١ ـ الألمعي ، زاهر بن عواض .
مناهج الجدل في القرآن الكريم .
جامعة الأزهر الشريف ، ١٩٧٣
٥٤١ ص

قد قسمت هذا البحث الى مقدمة وثلاثة أبواب وخاتمة .

تحدثت فى المقدمة عن بواعث اختيارى لهذا الموضوع . وعن قدره ومنزلته وأسباب قلة التأليف فى الجدل القرآنى .

اما البـاب (الأول) فقد جاء معقودا « للبحث عن مدلول الجدل ونشأته » وتحته أربعة فصول .

تحدثت فى الفصل « الأول » عن معنى الجدل فى اللغة والاصطلاح . وأوضحت فيه بعض الجوانب عن استعمال الجدل فى الوضع اللغوى وعن اصطلاحاته فى عرف المنطقيين والعلماء والأدباء مع بيان بعض الفروق .

ثم تحدثت فى الفصل « الثانى » عن الجدل علما ـ نشأته وتطوره . مع بيان أن الجدل مذكور فى الفطر الانسانية جبلة وطبعا .

ثم جاء الفصل « الثالث » عن جدال الملائكة وجدال ابليس وأوضحت فيـه بواعث الجدل عند كل من الفريقين .

اما الفصل « الرابع » فقد تحدثت فيه عن الجدل الممدوح والجدل المذموم وجمعت فيه كثيرا من النصوص من الكتاب والسنة واقوال العلماء ثم ختمت الفصل بملخص كالنتيجة لمـا تضمنه هذا الفصل من الجدل والموضوعية .

ثم جاء الباب « الثانى » معقودا لأدلة القرآن الكريم .

وتحته فصلان :

تحدثت فى الفصل « الأول » عن المناهج الاستدلالية فى القرآن الكريم .

ثم جاء الفصل « الثـانى » عن منهج القرآن فى استدلاله وهل سـلك منهج المنطق اليونانى ؟ وقد ناقشت هذا الموضوع من جوانب متعـددة وتناولت فيهـا بعض الجوانب من مناهج بعض الفلاسفة الاسلاميين كالغزالى والرازى وابن رشد وابن تيمية . وعرضت بعض آرائهم حول المنطق وادلة القرآن الكريم .

ثم جاء الباب « الثالث » معقودا لموضوعات الجدل فى القرآن الكريم وتحتـه تسعة فصول :

تحدثت فى الفصل « الأول » عن جدل القرآن للدهريين والمـاديين . وناقشت هذا الموضوع من جوانب متعددة وبينت فيه ارتبـاط المـادية الجدلية الحديثـة بالمذاهب المـادية القديمة .

ثم جاء الفصل « الثانى » عن الجدل فى وحدانية الله تعالى . وقد اشتمل هذا الفصل على عدة مشاهد نوقشت فيها قضايا اثبات الوحدانية من جوانب متعددة .

أما الفصل « الثالث » فقـد كان معقودا للجدال فى اثبات رسـالات الأنبياء ونماذج مما دار بين الأمم وانبيائها من جدال .

ثم جاء الفصل « الرابع » عن الجدال فى البعث والجزاء . وقد ناقشت فى هذا الفصل الأدلة العقلية والنقلية الدالة على امكان البعث وتحقق وقوعه .

أما الفصل « الخامس » فقد كان عن الجدال فى التشريعات . وقد ناقشت فى هذا الفصل مجادلات أهل الكتاب فى قضايا تتعلق بالتشريعات كالنسخ ، وتحويل القبلة ، والتحليل والتحريم ، ثم مجادلات المشركين . كمسألة الذبائح ، وقضـايا التحليل والتحريم .

ثم جاء الفصل « السادس » معقودا لموضوعات متفرقة ومقامات مختلفة لكثير من موضوعات الجدل الذى حكاه لنا القرآن الكريم .

أما الفصل « السابع » فقد تناولت فيه خصائص الجدل القرآنى . وحاولت فيه ابراز بعض المعالم الواضحة فى خصائص الجدل القرآنى .

ثم جاء الفصل « الثامن » عن أثر الجدل القرآنى فى السنة المطهرة وعلاقته بها واوردت النماذج الحية للجدل الذى استخدمه رسول الله ـ صلى الله عليه وسلم ـ بوصفه وسيلة من وسائل البيان والاقناع بالحجة والبرهان .

ثم جاء الفصل « التاسع » معقودا لأدب الجدل والمجادل فى ضوء التوجيه القرآنى . جمعت فى هذا الفصل بعض القواعد المهمة التى ينبغى أن يتقيد بها كل مجادل ينشد الحقيقة ويبتغى المنهج القويم فيما يمارسه من مجادلات هادفة بناءة لتقرير الحق ودفع الباطل وازهاقه فى حدود الآداب الرفيعة والمثل العليا للجدل .

ثم اختتمت الموضوع بخاتمة موجزة تحدثت فيها عن اهم النتائج التى أرجو أن تكون قد تحققت فى هذا البحث بعد عناء طويل ورحلة شاقة فى سبيل اتمامه ، تلك خطة البحث التى سرت على منوالها وجعلتها أساسا لبناء الهيكل العام لهذا البحث .

٢ — التركى ، عبد الله بن عبد المحسن .
اصول مذهب الامام احمد بن حنبل . جامعة الأزهر ، كلية الشريعة والقانون ، ١٣٩٣ هـ .
٧٤١ ص .

ان موضوع الرسالة يدل بادىء الراى والملاحظة على أنه قاصر على تحقيق أصول الفقه عند الامام أحمد ، ولكن ما تكاد تطالعك ابحاث الرسالة حتى تجد أنها اصول مقارنة ، ظفرت فيها اصول الامام احمد من صاحب الرسالة بالقسط الأوفى والحظ الأوفر من البحث ، والعمق ، والتحليل ، والاستنتاج ، والموازنة بينها وبين أصول الفقه عند الأصوليين ، من أرباب المذاهب الأخرى ، وتلاميذهم ، واتباعهم وذلك ببسط ارائهم ومذاهبهم ، وبيان ادلة كل رأى ، وما ورد عليها من نقد ومناقشات حتى اذا استقام له ذلك كله اتبعه بترجيح ما يراه جديرا بالترجيح لاستناده الى اقوى الأدلة ، واسطع الحجج ، وأسلم البراهين فى نظره .

واذن فالرسالة اصول مقارنة ، قورنت فيها أصول الامام احمد بعد بحثها بحثا كاملا مستفيضا ، بأصول الأئمة الآخرين ، وآراء علماء الأصول من سائر المذاهب ولا ضير فى ذلك ما دام عنوان الرسالة هو السمة البارزة فى صلب الرسالة وابحاثها ، والزيادة ضرورة اقتضاها كمال البحث ووفاؤه ، والعلماء يستحسنون ذلك ويستحبونه ، اذ يقولون عندما تزيد الأبحاث عن النرجمة التى جعلت عنوانا للبحث : ترجم للشيء وزاد عليه ، وهو أمر مقبول لدى العلماء ، وان هذه الزيادة تتجاوز درجة الاستحسان والاستحباب الى درجة الوجوب ومنزلته ، فان البحث الواجب فى أصول الفقه عند الامام احمد ، لا يتم الا بموازنته ومقارنته بالأصول لدى الأئمة الآخرين وتلاميذهم واتباعهم ، مقارنة تقوم على مقارعة الحجة بالحجة ، والدليل بالدليل ، وما لا يتم الواجب الا به فهو واجب .

أن المذهب الحنبلى هو المذهب السائد حاليا فى شبه جزيرة العرب ، وهو المنتشر بين الدارسين فيها ، والمقرر فى دور العلم والجامعات بها ، أصولا وفروعا فدراسة أصوله وتوضيحها مما يخدم هذا المذهب وييسر دراسته ، والاطلاع عليه والاستفادة منــه لمن أراد . وان كان العلم فى حــد ذاته ليس حجرا على بلد دون اخرى ، أو قوم دون آخرين ، ولكن مجال الاستفادة يختلف باختلاف البيئـات والظروف والأحوال .

٣ ــ الثقفى ، سالم على محمد .
الفقه الحنبلى وكيف وصل الينا . جامعة الأزهر ، ١٣٩٦ هـ .
٨٨٢ ص .

اشتملت على مقدمة وسبعة أبواب وخاتمة .

فأما المقدمة فجعلتها لبيان الطريق التى وصل بواسطتها الفقه الاسلامى الى امام المذهب الحنبلى ابتداء من زمن رســول الله صلى الله عليه وسلم الى زمنــه بالتسلسل والتحليل .

وذلك بذكر نبذة مركزة عن نشأة الفقه عموما ووصف التطور الذى مر فيــه من تدوين ، واستقلال بمنهج خاص عن الحديث ... حتى جئنا على قصة المذاهب وبداية زمن التقليد المذهبى .. ثم استطلعنا مشاهير اصحاب وتلاميذ كل مذهب .. الخ .

ثم بدأت بالدراسة حول الجوانب المقصودة بتدشين البحث من اجلها ، فاذا تمام فائدتها يحتاج الى التعرف على تاريخ حياة صاحب هذا الفقه ــ الامام احمد ابن حنبل وما ناله من الشدائد ، ومن جهــة أخرى ما ســاعد على تكوين علمه ، ولذلك ..

بدأت بالباب الأول : فاستعرضت فى الفصل الأول منه تاريخ حيــاة الامام أحمد من أخبار أسرته وتربيته ومعيشته وسيرته ومظهره الشخصى ومزاجه النفسى وقصة طلبه العلم ، ثم متى كانت بداية جلوســه للتحديث والافتاء ... الخ .

وفى الفصل الثانى : أطلعت القارئ على أخبار وتطورات المحنة التى ابتلى من القول بخلق القرآن ، فأولا تعرضت لمعرفة أسباب هــذه المحنة بمــا لم أجد أحدا تناول تاريخها سبقنى اليه من أوثق المصادر والمخطوطات وأقدمها .

ثم استعرضت أطوار استمرارها طوال سبعة عشر عاما ٢١٨/٢٣٤

واخيرا بحث النتائج المتمخضة عن خلق تلك المحنة سواء على شخص الامام احمد أو على المجتمع الاسلامى التى بلا شك كانت خطيرة .

ثم ثنيت بباب ثان : وفيه أمطت اللثام عن مكونات علم هذا الامام التى خلقت فيه مجتهدا من الصنف الجاد الذى لا يجاريه أحد وقد حاولت التعرف على من لقى من الشيوخ وتأثر بمسلكه .. ثم ما كان للعصر الذى عاش فيه من تأثير عليه وما كان له من عطاء فيه حيث أحصيت مؤلفاته فبلغت ٢٣ مؤلفا لم يحصها أحد بمثل احصائى رغم كثرة من ترجم له هذا فى فصل .

ثم فى الفصل الذى يليه خصصت الدراسة لمذهب الامام احمد فى الاعتقاد وركزتها على القضايا التى دار فيها الخلاف بين الناس بقضايا الايمان والصفات .

وفى الباب الثالث استطلعنا منهج الامام أحمد فى فقهه وأصول استنباطاته العشرة وقد استفيدت فى معرفتها معلومات وزيادات توضيحية حصلت عليها مما وقع بيدى من مخطوطات من تراث فقه هذا الامام (من شتى مناطق العالم حيث بلغ ما صورته من ذلك نحو ٤٠ مخطوطة بعضها يقع فى ثلاث مجلدات مجموع صفحاتها يزيد على ١٥٠٠ صفحة وأشياء منها لم تر الشمس) .

هذا مع عقد المقارنة فى كل اصل يبين منهج الامام أحمد ومنهج غيره من الأئمة الأربعة وفلسفة كل امام لتناول كل أصل .

وأما فى الباب الرابع : فأبنت فيه طبيعة الفقه الحنبلى ، واظهر ماله من مزايا انتفعت منها البشرية طرا بما لم ينتفع بمثلها من غير الفقه الحنبلى .

ومن ذلك على سبيل المثال : ميزة انفراد المذهب الحنبلى بالتوسع فى اجازة الشروط فى العقود عموما ، واجازة بعض العقود بصيغ معلقة ... ومن ذلك أيضا : راى الفقه الحنبلى فى عدم قفل باب الاجتهاد .

وفى الباب الخامس : تم التعرف على مصطلحات الفقه الحنبلى ، وطرق استفادة الأحكام من الفاظه .

وقد سميت هذه المصطلحات الى : ما للامام أحمد منها فى فتاويه بينتها باستفاضة وبنيتها على احصائيات موسعة من فقه احمد الذى لا زال أكثره مخطوطا أعنى الفقه الذى دون عنه فى حياته من واقع الفاظه هو .

ثم فى القسم الثانى منها حشدت ما لأصحاب المذهب من اصطلاحات سواء كانت من الألفاظ او من الرموز ، وقد حللت رموزهم التى استعملوها فى الاشارة الى اسماء المؤلفين أو المؤلفات فبلغت أسماء من رمزوا الى اسمه من المؤلفين ما زاد على ٣٠٠ اسم أرشدت القارىء الفقيه الى أصحابها ، ومن المؤلفات ما زاد على ١٨٠ رمزا بينت أسماء المؤلفات تلك الرموز الى أسمائها على طريقة المتقدمين فأظهرتها على طريقة المتأخرين .

وفى الباب السادس : شرحت طريقة تلى الفقه الحنبلى عن امامه وطريقة نقله الى الناس ـ بسبب أنه أثير حول ذلك ما أثير .

حيث فى الفصل الثانى تعرضت لبيان صفة الأوجه والاحتمالات الواردة عن الأصحاب ، وبعدها ذيلت ببيان المحاذير فى النقل والعزو فى التاليف فى المذاهب الا بعد اكتمال أهلية المؤلف والسبب أنه وجد من مارس العملية قبل اكتمال الدراية بخفايا تاريخ الفقه الحنبلى وما مر فيه من أطوار ، وما له من صفة فريدة جاء الى الناس عن طريقها .

ثم ختمت بباب سابع : تناولت فيه تاريخ تدوين الفقه الحنبلى ، واسماء مشاهير مدونيه الذين بلغوا ٩٠ تلميذا وهؤلاء هم الذين احصيت اسماؤهم انا من واقع أوثق المصادر المخطوطة ككتاب الخلال عن اصحاب الامام احمد وغيره من المراجع واحصيت ما دون هؤلاء فى اجزاء فقط فبلغت ١٧٠ جزءا بعضها حصلت عليه مخطوطا ووصفت ما لم يقع بيدى مما لم أصور ولم أتمكن من تصويره أو حالت ظروف دون أن أحصل عليها .

ثم ختمت هذا الباب : بفصل تعرضت فيه لتاريخ انتشار المذهب الحنبلى عبر الزمان وفى كل مكان ، مع بيان ميزة المتذهب به ، وما لأجله اختاره اكابر الأئمة من واقع كلامهم هم بألفاظهم .

٤ ـ العجلان ، عبد الله محمد .
التقليد ، تاريخه ، أحكامه ، أثره .
جامعة الأزهر ـ كلية الشريعة والقانون ، ١٣٩٥ هـ .
٧٣٩ ص (مجلدان) .

لقد كان لى فى اختيارى موضوع هذه الرسالة (التقليد وأثره فى حياة المسلمين) والكتاب فيه باعث ومن ورائه غاية وفى سبيل الوصول اليه منهج ولجمع المعلومات مراجع .

أما الباعث الاختيارى هذا فهو اننى رايت أن يكون موضـــوع رسالتى من الموضوعات التى لها مساس بحياة الناس اليوم ، وفى قضية يتصل موضوعها بأفعال المكلفين والبحث عن ميراث النبوة ومعرفة الحلال والحرام والجائز والممنوع من الأفعال والأعمال والأموال وفى طريقة اخذ هذه هذه الاحكام واستفادتها من الأدلة الاجمالية والقواعد الكلية . ذلك أننى لاحظت ما ترتب على المبالغة فى الأخذ بمبدأ التقليد من ضرر حاق بالمجتمعات الاسلامية التى اتخذته سياسة والتزمت به مبدأ . فمنذ ظهر الأئمة الأربعة واستقرت مذاهبهم فى الامصار وتتلمذ الناس عليهم ، قيل باغلاق باب الاجتهاد نهائيا وكان لذلك ظروف تاريخية قد تبرره فى وقته ، ولعل من اقواها ان الفرق المارقة وأصحاب الفلسفة وادعياء الاجتهاد حاولوا أن يتخذوا من الاجتهاد مدخلا الى تحقيق مآربهم السيئة نحو الدين والمجتمع الاسلامى ، فقال قوم باغلاق هذا الباب الذى غدا بابا للشر على الدين وعلى المجتمع على حد سواء ، وتبنت بعض الحكومات الاسلامية هـذا الاتجاه فى ذلك الوقت ، وكان معظمها حكومات غير عربية تنقص القائمين عليها المعرفة باللغة العربية والفقه بأصول الشرع ، فكانت ادوات الاجتهاد مفقودة بالنسبة لهم وكان فى التقليد حلا لمشاكلهم مع تشابه الحياة فى عهدهم مع عهد المجتهدين .

ولم يظهر اثر هذا الاتجاه فى وقته ، ولكن المشكلة اتت من أن المجتمع الاسلامى تطور مع الزمن وتجددت مشكلاته وتغيرت الحياة من حوله وتغيرت حياته ، على حين أن الأحـكام التى كانت توجهه وتقوده قد جمـدت من زمن القول باغلاق باب الاجتهاد . وكانت المجتمعات الاسلامية فى القرن الثالث عشر تحكم بفقه وضعت مسائله واصوله فى القرنين الثالث والرابع الهجريين . والأصل فى الفقه والتنظيمات ان تساير تطور المجتمع وتكون من اسباب دفعه من جهة وضبطه فى نفس الوقت من جهة اخرى حتى لا تتخلف المجتمعات أو تجمد .

اما الغاية من وراء اختيارى هذا الموضوع فهى جمع شتاته وضم المتفرق من ابحاثه فى مكان واحد والتنسيق بينها ، ومن ثم عرض حقائق هذا الموضوع عرضا امينا يكشف النقاب عن اوجه الخلاف فيه والوفاق على بعض مسـائله ، واجراء دراسة وافية لكل مبحث عن مباحثه وتشخيص وجهات النظر حوله ، ومناقشـة ادلة كل من المانعين والمجيزين واجراء موازنة دقيقة بينها تتسم بالموضوعية والبحث الحر الذى يهدف الى الوصول الى الحقيقة واتباع ما هو اولى ، واجراء دراسـة تاريخية لعلم الفقه وأثر الفقهاء فيه فى مختلف العصور والمراحل التى مر بها وعمل العلماء فى كل مرحلة ، ليقرب ذلك الى فهم هذا الموضوع والاستعانة به فى الوصول

الى ما هو أولى باتباع فيه واعطاء حكم صادق بعد ذلك ، ومن ثم ايجاد مؤلف يتيم فى هذا الموضوع يسد فراغا موجودا فى المكتبة الاسلامية ، ويبين وجه الحق فى عمل ساد الحياة العامة عند المسلمين منذ القرن الرابع الهجرى ، ويحدد به موقفنا من علم الفقه الذى وصل الينا كثمرة من ثمار عمل العلماء فى مختلف المذاهب الاسلامية ، وبيان وجه الحق فى القول بأن آثاره حسنة طيبة أو سيئة خطيرة ، أو أن يكون ذلك بداية أبحاث جديدة تتناول هـذا الموضوع بالتحليل والدراسة وبيان وجه الحق فيـه .

ومن هذا يظهر أن الغاية الأخيرة امامى عندما اخترت هذا البحث هى أن اجعل من فقه الشريعة الاسلامية السمحة أداة لقيادة المجتمعـات الاسلامية وتنظيمها ، ووسيلة لتقدمها دون أن تخرج هـذه المجتمعات من جلدها وتتقمص جلودا أخرى اجنبية مع نبل فقهنا وسمو شريعتنا .

الاجتمـاع

٥ ــ المـالك ، صالح عبد الله .
الهجرة الريفية والنمو الحضرى لمدينة الرياض ــ المملكة العربية السعودية .
جامعة متشجن ــ آن أربر ، ١٣٩٣ هـ .

منذ الأربعينيات ومدينة الرياض ــ عاصمة المملكة واكثر مدنها ازدهارا ــ تستقبل آلاف المهاجرين الذين وفدوا من جهات متعددة بحثا عن العمل والحيـاة الكريمة الرغدة . وتشكل الهجرة الى مدينـة الرياض ٧٥ ٪ من الزيادة السنوية لسكان هذه المدينة . وقد اهتمت هـذه الاطروحة بفحص وتحليل اثر الهجرة الى هذه المدينة التى تشهد توسعا سريعا فى الجوانب الطبيعية والاقتصادية والاجتماعية .

تحتوى هذه الاطروحة على ستة فصول : الفصل الأول يجسد المشكلة وحجمها واهميتها ويقـوم بعرض تفصيلى لمـا كتب عن الهجرة والنمـو الحضرى . ويهتم الفصل الثانى بوصف الاحصائيات التى استخدمت فى هذه الدراسة وتصميم البحث والاجراءات التى اتبعت للوصول الى معايير معينـة لاستعمالها كمقياس فى فحص النظريات المستخدمة فى هذه الاطروحة . اما الفصل الثالث فيقوم بتحليل الاحصائيات المتعلقة بالجوانب العمرانية لمدينـة الرياض ثم يناقش مطـابقة النظريات المختلفة المتعلقة بالتوزيع الفضائى لمدينة الرياض فى عصرها الراهن . وفى هذا الفصل تحليل مقارن لمناطق الرياض العشر فيما يتعلق بدخل الأسرة ، واجرة المسكن ، والكثافة السكانية للمنزل ، وحالة المسكن ، وكانت المعايير التى استخدمت فى هذه الدراسة لقياس حالة المسكن هى مواد البناء ، والمرافق العامة ، والمظهر الخارجى للمسكن . وركز الفصل الرابع على دراسة الهجرة الجماعية الحديثة لمدينة الرياض ودوافع ونتائج هذه الهجرة ثم اهتم بتحليل بعض الجوانب الديموجرافية لسكان المدينة مثل فئات العمر والجنس وحجم الاسرة . وقد شمل الفصل الخامس بعض الفرضيات للكشف عن العلاقة بين اصل المهاجر كمتغير مستقل وبين مركز المهاجر الاجتماعى والاقتصادى بعـد الهجرة كمتغير تابع . وقد اختيرت الوظيفـة والمستوى العلمى والدخل كمؤشرات للمركز الاجتماعى والاقتصادى .

وكانت الأسئلة الاساسية فى هذه الدراسة كالآتى :

١ ــ الى اى مدى يشكل المهاجرون الريفيون طبقة خاصة فى مركزهم الاجتماعى والاقتصادى وفى نقطة استيطانهم بالمدينة ؟

٢ - الى اى مدى يعتبر المهـاجرون طبقة مميزة فى العمر والمستوى العلمى وكون معظمهم من الذكور ؟

٣ - هل المدينة الى حد ما - مقسمة الى ثلاثة قطاعات : القطاع الحديث نسبيا وتحتله الطبقة الغنية ، والقطاع الريفى وتسكنه الطبقة الفقيرة التى هاجرت من المناطق الريفبة ، والقطاع التقليدى ويسكنه سكان المدينة الأصليون مع اختلاف مستوياتهم الاجتماعية والاقتصادية ؟

ولانجاز هذه الدراسة قام المؤلف باستخدام مصدرين احصائيين هما :

١ - المسح العينى لأسر الرياض وقد قامت مؤسسة دوكسيادس بهذا المسح فى عام ١٩٦٨ واحتوى هذا المسح على ٢٥٥٨ بيتا خاصا وتمثل هذه العينة ٥ ٪ من مجموع بيوت الرياض التى قدرت آنذاك بـ ٥١١٦٠ والمصدر الاحصائى الثانى المستخدم فى هذه الدراسـة هو المسح الذى قام به مركز الأبحـاث والتنمية الصناعية والذى شمل ١١٢ عاملا صناعيا سـعوديا فى الرياض . والاختبارات الاحصائية التى استخدمت فى هذه الدراسة هى كاى - مربع ، وتحليل التباين ، والتقنين المباشر ، ومقياس التفاوت .

وبعد تحليل الاحصائيات المستخدمة فى هذه الدراسة اهتم الفصل السادس والاخير بتلخيص وتفسير النتائج وقوم بصورة تحليلية مطابقة الفرضيات الواردة فى هذه الدراسة للاحصائيات المستمدة من المصدرين المشار اليهما سابقا .

وقد اشارت نتائج هذه الدراسة الى ان المدن مقسمة الى ثلاثة قطـاعات : القطاع التقليدى ويسكنه - بصورة عامة - غير المهاجرين ، والقطاع الريفى ويحتله المهاجرون الريفيون ، والقطاع الحديث ويسكنه كل من المهـاجرين من المدن وغير المهـاجرين . ودلت النتائج أيضـا على ان المهاجرين اصغر سنا من غير المهاجرين وأن نسبة الذكور فيهم مرتفعة . وفيما يتعلق بالمركز الاجتماعى والاقتصادى فالنتائج تدل على ان المهاجرين من المدن وسكان الرياض الأصليين احسن حالا من المهاجرين الريفيـين أو المهـاجرين من البـادية فى كل من مؤشرات الحـالة الاقتصـادية والاجتماعية .

القـانون

٦ ـ القاسم ، عبد الرحمن عبد العزيز .
النظام القضائى الاسلامى ، مقارنا بالنظم القضائية الوضعية وتطبيقه فى المملكة العربية السعودية جامعة القاهرة ـ كلية الحقوق ، ١٣٨٩ هـ .
٨٩٣ ص .

تتكون الرسالة من باب تمهيدى وثلاثة أقسام :

بحثنا فى الباب التمهيدى القضاء عبر العصور فى ثلاثة فصول :

خصصنا الاول منها للقضاء لدى العرب قبل الاسـلام ، وفى مصر والهنـد والصين . ثم لدى الرومان والاغريق والجرمان والقبائل الأوربية الأخرى . ثم فى الشرائع السماوية قبل الاسلام .

وفى الفصل التانى بحثنـا السلطة القضـائية فى الاسـلام بمختلف عصوره القديمة .

وفى الفصل الثالث بحثنا السلطة القضائية فى الدول الاسلامية الحديثة بصفة عـامة .

أما القسم الاول فقد بحثنا فيه مدى حق ولى الأمر فى تنظيم القضاء . وفى القسم الثانى بحثنا مدى سلطة ولى الامر فى تقييد القضاء وفى القسم الثالث بحثنا الناحية التطبيقية للقضاء الاسلامى فى المملكة العربية السعودية . فتضمن القسم الأول بابين الأول عن السلطة القضائية وتشكيلها فى فصول اربعة : الأول فى أولى الأمر والثانى فى تولية القضاء والعزل منه والثالث فى اهلية القضاء والرابع فى تشكيل هيئة القضاء .

والباب الثانى تضمن تنظيم التقاضى فى ثلاثة فصول .

الفصل الاول فى تنظيم الدعوى والثانى فى تنظيم اجراءات التقاضى والثالث فى تنظيم الاحكام وطرق الحكم وادلته ، كما تضمن القسم الثانى بابين بحثنا فى أولهما مشروعية حق ولى الأمر فى التنظيم والتقييد ونطاقه . وخصصنا ثانيهما للقيود التى يتقيد بها القضاء وهى ما تسمى بالاختصاص بأنواعه المكانى والزمانى والنوعى أو

الموضوعى والشخصى وكذلك التقيد بالأحكام سواء كانت محددة فى نصوص مواد أو بأحكام مذهب معين .

والقسم الثالث والأخير وهو الناحية التطبيقية للقضاء الاسلامى فى المملكة العربية السعودية فعرضنا للتنظيم القضائى فيها : كتشكيل السلطة وجهات التقاضى فيها وتعدد محاكمها ودرجات التقاضى . ثم أوردنا بعض مظاهر التدخل فى التنظيم القضائى .

ثم ختمنا الرسالة باقتراح مشروعين لنظامين اولهما للسلطة القضائية وثانيهما للتقاضى تضمن أولهما ثمان وثمانين مادة كما تضمن ثانيهما اربعمائة مادة ومادة واحدة .

تربيــة وتعليم

٧ ـ **الرشيد ، محمد الأحمد .**
اهداف الجامعة ووظائفها ، دراسة لتصورات الطلبة السعوديين الدارسين في أمريكا . جامعة أوكلاهوما ، ١٩٧٢
١٧٧ ص .

عنى الباحث باستقصاء اهداف ووظائف الجامعة ومؤسسات التعليم العالى فى المملكة العربية السعودية (كما نصت عليها سياسة التعليم فى المملـكة) وكذلك اهداف الجامعة ووظائفها فى نظر عدد كبير من العلماء المهتمين بالتعليم العالى فى بلاد اجنبية ، ســواء فى ذلك الأهداف المنصوص عليهــا فعلا والأهداف الضمنية التى انبثقت من خلال الممارسة .

وقام الباحث بمراجعة كل الأهداف والوظائف ، وخلص من هذه المراجعــة الى خمسين هدفا ووظيفة اعتبرت جوهر اهداف الجامعة ووظائفها . ثم قام الباحث بصياغة هذه الاهداف والوظائف صياغة علمية محكمة ، وضمنها فى استبيان وجه الى عينة البحث .

عينة البحث :

وجه الاستبيان الى جميع الطلبة السعوديين الدارسين فى امريكا ، وطلب الى كل منهم ان يحدد مدى اهمية كل هدف ووظيفته فى ست مراتب (اهمية بالغة ـ مهم جدا ـ متوسط الأهمية ـ اهمية قليلة ـ لا اهمية له ـ لا ادرى) .

افتراضات البحث :

استند البحث الى مسلمات اساسية منها :

١ ـ أن التعليم العالى بعامة والتعليم الجامعى بخاصة ذو اثر فعال فى تطوير كافة جوانب الحياة فى المملكة .

٢ ـ ان الطلبة السعوديين الدارسين فى المملكة يمثلون صفوة من الشباب السعودى المثقف وان لهم دراية وخبرة باهداف التعليم العالى وممارساته فى المملكة وفى الولايات المتحدة ، وانهم سيتولون مناصب ذات مسئولية فى المملكة . ومن هنا فان التعرف على وجهات نظرهم فى اهداف الجامعة ووظائفها امر يجب ان يؤخذ فى الحسبان .

فروض البحث :

استهدف البحث اختيار ثمانيـــة فروض تتعلق بمدى اختلاف وجهات نظر الطلبة السعوديين فى اهداف الجامعة ووظائفها تبعا لاختلافهم ، فيما يلى :

١ ــ ميادين الدراسة المتخصصة .

٢ ــ المستوى التعليمى .

٤ ــ طبيعة الخبرة العملية .

٥ ــ طبيعة العمل الذى يتوقع أن ينهضوا به فى المملكة بعد تخرجهم .

٦ ــ عدد سنوات دراستهم فى الولايات المتحدة .

٧ ــ انتمائهم الى المناطق المختلفة فى المملكة .

٨ ــ الحالة الزواجية .

وقد تم اختبار كل هذه الفروض وفقا للأساليب الاحصائية المتعارف عليها .

نتائج البحث :

وقد اسفر البحث عن النتائج التالية :

١ ــ تصور الطلبة السعوديين لأهداف الجامعة ووظائفها فى المملكة العربية السعودية مرتبة حسب اهميتها فى نظرهم .

٢ ــ الكشف عن اثر العوامل المشار اليها فى الفروض فى اختلاف تصور الطـلاب السعوديين لأهداف الجامعة ووظائفها .

٣ ــ توصيات محددة تتصل بأهداف التعليم الجامعى ووظائفه فى المملكة .

٤ ــ بيان بالدراسات والبحوث التى يجب أن تلى هذا البحث .

٨ ـ ظافر ، محمد اسماعيل .
بحث العوامل التى تؤثر فى الالتحاق او عدم الالتحـاق ببرامج اعداد معلمى المرحلة الثانوية . جامعة ميتشجن ، ١٣٩٢ هـ .
٢٦٢ ص .

النقص فى المعلم السعودى المؤهل تأهيلا علميا وتربويا لمواجهة التقدم الكمى والنوعى فى التعليم الثانوى (الصف ٧ الى ١٢) من المشكلات التى تواجه التربيـة والتعليم فى المملكة العربية السعودية فى عصرنا الحـاضر . لذلك فمن اهم اهداف تلك الدراسة :

١ ـ تقصى العوامل التى تؤثر على الالتحاق أو عدم الالتحاق فى برامج اعداد معلمى المرحلة الثانوية .

٢ ـ معرفة اهم العوامل التى تؤثر فى العرض والطلب بالنسبة للمعلم المؤهل تأهيلا مهنيا خاصا (علميا وتربويا) للتدريس فى التعليم السعودى الثانوى .

٣ ـ وضع الخطوط الرئيسية لخطة عشرية متكاملة كما ونوعية لاعداد معلمى التعليم الثانوى . والى جانب تلك الأهداف وجهت الدراسة للاجابة على بعض الأسئلة ومن اهمها :

(ا) ما اثر كل من : رغبة الطلاب ، التجميع المـالى ، وطبيعة الدراســة فى معاهد وكليات اعداد المعلم على المشكلة ؟

(ب) الى اى مدى تلعب هـذه المتغيرات دورا فى ملازمة مشـكلة الالتحاق أو عدمه فى كليات اعداد المعلمين فى الوقت الحاضر ؟

(جـ) هل ينظر طلاب الكليات والجامعات الى مهنة التدريس كنظرتهم الى بقية المهن الحكومية الأخرى ؟ لمـاذا نعم ولمـاذا لا ؟

(د) كيف ينظر طلاب المدارس الثانوية الى المهنة فى المستقبل ؟ وكيف يؤثر ذلك على اختيار الدراسة الجامعيـة ، وبالتالى على شعورهم نحو مهنـة التدريس ؟

(هـ) هل وضعت خطة لمواجهة النقص فى المعلم السعودى ؟ واذا وجدت تلك الخطة فما سماتها ؟ وما نتائج تطبيقها ؟ وماذا يمكن اضافته الى تلك الخطة ؟

وللوصول الى أهداف الدراسة والاجابة على الأسئلة المتقدمة وغيرها استعملت كل المراجع والوثائق التعليمية التى توافرت للباحث فى ذلك الوقت . واضافة لذلك استطلع الباحث آراء طلاب الجامعات والمدارس الثانوية فى انحاء المملكة العربية السعودية باستعمال استفتاء شامل لبعض جوانب المشكلة والتى شملت ٧١٦ طالبا ذكرا ٤٠٢ من بين طلاب المدارس الثانوية و٣١٤ من بين طلاب الجامعات والكليات التى يحتمل أن يعمل خريجوها فى حقل التدريس . وقد تضمنت هذه الرسالة خمسة فصول :

الفصل الأول : تنظيم شامل للدراسة : مقدمة واهمية المشكلة واثرها على عملية التربية والتعليم من جميع الاتجاهات الاقتصادية والاجتماعية والتعليمية .. الخ .

الفصل الثانى : مراجعة الدراسات السابقة والدراسات ذات الصلة بالموضوع لا سيما تلك التى عملت على التعليم فى المملكة العربية السعودية وكذلك عرض لتاريخ المشكلة وتقييما لبرامج اعداد المعلمين فى الوقت الحاضر .

الفصل الثالث : تخطيط البحث ، الاستفتاء ، اختبار العينة .. الخ .

الفصل الرابع : تحليل نتائج البحث الميدانى .

الفصل الخامس : خلاصة البحث ونتائجه ، التوصيات . بعض الأسس الهامة لتوضيح معالم الطريق لخطة عشرية جديدة وبرنامج لاعداد المعلمين . ملحق ببعض البحوث ذات الصلة بالمشكلة والتى يمكن أن تجرى فى محيط المملكة العربية السعودية . وقد ألحقت الرسالة بالملحقات التالية :

(أ) المراجع .

(ب) استفتاء لطلاب الجامعات فى المملكة العربية السعودية باللغتين العربية والانجليزية

(جـ) صورة استفتاء لطلاب المدارس الثانوية فى المملكة باللغتين العربية والانجليزية .

(د) جداول احصائية وبيانات ميدانية ذات صلة بالدراسة .

الضرائب

٩ ــ النعيم ، عبد العزيز العلى الصالح .
نظام الضرائب فى الاسلام ومدى تطبيقه فى المملكة العربية السعودية مع المقارنة . جامعة القاهرة ــ كلية الحقوق ، ١٩٧٤
٦٤٧ ص .

لقد حاول فى رسالته ان يوضح قدرة احكام الشريعة الاسلامية على مسايرة التطور وعلاج كافة المشاكل التى تهم المجتمع سواء من الناحية الدينية أو الدنيوية .

لقد لاحظ ان المجتمعات الآن تحتاج الى المال لانفاقه على مصالح مجتمعاتها وتلجأ الدول الى فرض الضرائب على المواطنين ، وكثير من الدول الاسلامية مع الأسف تلجأ الى الأنظمة الأجنبية تستند اليها فى فرض الضرائب وكيفية تطبيقها لكنى فى هذه الرسالة استطعت أن أكون نظرية عامة فى الضرائب يمكن تطبيقها فى البلاد الاسلامية دون الحاجة الى استعارة انظمة من الغرب .

ان انظمة الجزية والخراج والعشور التى كانت سائدة فى عهد الرسول كالجزية وفى عهد خلفائه كالخراج والعشور الى جانب الجزية ــ يمكن ان تساعد الباحث وكذلك الذين يتولون تنظيم الضرائب فى البلاد الاسلامية على وضع نظام ضريبى متكامل يحقق العدل بين الناس كما يحقق رغبة الدول فى الحصول على المال وتحقيق الأغراض المطلوبة من فرض الضرائب ، خصوصا وان الممولين سيساعدون على تنفيذه لثقتهم بمصدره الاسلامى .

ولو تتبعنا انظمة الضرائب المعاصرة من حيث تقسيمات الضرائب واغراضها وطريقة فرضها وتعديلها وكل ما يتعلق بها لوجدنا اسس هذا التنظيم كافيا فى احكام الشريعة الاسلامية سواء ما جاء فى النصوص الشرعية او ما طبقه ولاة أمور المسلمين فى العصور الاسلامية السابقة وخاصة فى عهد الخلافة الراشدة وكذلك ما أودعه فقهاء الاسلام فى كتبهم الفقهية .

ان الرجوع الى احكام الشريعة الاسلامية فيه غناء عن اية انظمة اخرى والله ولى التوفيق .

النقــل

١٠ ـ عبده ، اسعد سليمان .
دراسة جغرافية النقل فى المملكة العربية السعودية مع تركيز على النقل على الطرق . جامعة درم ، ١٣٨٩ هـ .

تبدأ الرسالة بتعريف بالمملكة العربية السعودية ، جيولوجيتها ، سفح الأرض ، سكانها وتوزيعهم ، احجام المدن وانماطها ، الوضع المالى ، الانتاج الزراعى والصناعى الخ . يلى ذلك دراسة النقل فى المملكة عبر التاريخ (الفصل الثانى) . ثم تعالج الرسالة الوضع الحاضر للنقل فى المملكة ، فالفصل الثالث دراسة لتوسع شبكة الطرق المسفتلة وتحرى العوامل التى اثرت فى هذا التوسع . والفصل الرابع دراسة لمشاكل النقل الناتجة عن البيئة الطبيعية للبلاد (مثل الجبال والتكوينات الرملية والحواف المرتفعة) ، ثم تأتى فى الفصل الخامس دراسة اهم المشاكل الناجمة عن البيئة البشرية للبلاد (نقص الأيدى العاملة وعدم توفر الخبرة الفنية) .

وفى الفصل السادس درس تطور استعمال السيارات فى المملكة وعلاقة ذلك بالعوامل الاقتصادية ، كما درس التوزيع الجغرافى للسيارات واهم العوامل التى تؤثر على استيرادها ، كذلك وضعت جداول تدل على العدد المتوقع استيراده من السيارات حتى سنة ١٩٨٥

وفى الفصل السابع درست الحركة على الطرق من حيث تطورها ، انماطها وعلاقتها بالعوامل المتعددة التى تؤثر فيها . ثم درست حركة النقل الجوى (الفصل الثامن) وحللت بحسب حجم وتوزيع المدن وبحسب المسافات والعوامل الاخرى ، كما درست أثر الحج فى الحركة الجوية ووضعت جداول تدل على النمو المتوقع للحركة الجوية حتى سنة ١٩٨٥

وفى الفصل التاسع درست ثلاث من مشاكل النقل فى المملكة وهى :

(أ) سوء الاستغلال الناتج عن زيادة او نقص حمولة السيارات .

(ب) الاسراف الناتج عن كثرة استخدام التكاسى بدلا من الأوتوبيسات .

(جـ) ارتفاع تكاليف نقل الحجاج .

والفصل العاشر دراسة لأثر تطور المواصلات فى الحياة الاجتماعية وفى نمو المدن فى المملكة ، اما الفصل الحادى عشر فهو دراسة تحليلية لاقتصاديات النقل على الطرق فى المملكة (تكاليف وأجور التكاسى والأتوبيسات وسيارات الشحن) .

والفصل قبل الاخير فى الرسالة (الفصل الثانى عشر) هو تطبيق وتطوير لنظرية علمية عن تطور شبكة الطرق فى البلدان النامية ، وهى دراسة نظرية بحتة بعكس الفصل الثالث عشر الذى تعرض للمشاكل العملية التى تواجه واضعى سياسة النقل فى المملكة ، وقد حلل المؤلف هذه المشاكل ورسم الخطوط العريضة للخطة التى يقترح ان تسير عليها البلاد فى تخطيط سياستها العامة للنقل .

لقد درست الرسالة جميع المواضيع التى سبقت الاشارة اليها دراسة علمية معتمدة على الوصف والشرح وعقد المقارنات وتدعيم الأفكار بالصور والخرائط والأرقام . وقد حللت المعلومات طبقا لأحدث الطرق العلمية وبالاستعانة بالعقل الألكترونى .

Converted by Tiff Combine - (no stamps are applied by registered version)

اللغـة العربيـة

١١ ــ باكلا ، محمد حسن .
دراسة القوانين الصرفية والصوتية وبخاصـة فى اللغة العربية . جامعـة لندن ، ١٣٩٣ هـ .

ان قواعد ونحو اى لغة من اللغات الانسانية ليست الا مجموعة من القوانين المتشابكة والمتعاضدة . هذه القوانين او معظمها يستنبطها الطفل عن طريق تعرضه للقذائف والطلقات الكلامية من كل جوانب المجتمع والمحيط الذى يعيش فيه عن طريق المنزل والشارع وطرق اخرى . قلت ان هذه القوانين متشابكة ومتآزرة وهذا يدل على أن هناك مستويات متعددة للغة فهناك المستوى الدلالى أو المعنى وربما تتفق جميع اللغات على هذا المستوى . وهناك ايضا المستوى التركيبى او « السنتاكتيكى » ، والمستوى الصوتى الوظيفى او « الفونولوجى » ، والمستوى الوظيفى أو « الفونيتكى » . ومن الممكن ترتيب القوانين التى نستنتجها من اللغة فى كل مستوى من هذه المستويات من ناحية وخلال كل المستويات السابقة من ناحية اخرى . وقد أثبتت النظرية اللغوية التى تدعى بـ « النحو التحويلى ــ التوليدى » أو Transformational Generative Grammar وجود هذه المستويات فى كل اللغات المعروفة فى الوقت الحاضر . الا أن هذه النظرية تحاول أن تغفل مستوى مهما فى بعض اللغات وهو ماأطلق عليه بالمستوى الصرفى Morphological Component وهذا البحث يقدم الدليل على اثبات وجود هذا المستوى فى كثير من لغات العالم . وقد ركزت فيه على اللغة العربية فى معظم الأحيان . وفى الواقع أن اية نظرية عامة لابد وأن تأخذ بعين الاعتبار مثل هذا المستوى والا فانها ستفقد صفة العموم وصبغة الشمول اذا اغفلت هذا الجانب أو امثاله .

ويشتمل البحث على عشرة فصول طرقت فى الفصل الأول اهميـة الجدول الصرفى من الناحية الوصفية والتعليمية وبينت الظواهر التركيبية ــ الصرفية التى يبدو اثرها جليا على المستوى الصرفى وتطرقت فى الأربعة فصول التالية لقوانين المستوى الصرفى فى اللغات وبخاصة فى اللغة العربية ، وعلى الأخص اللهجة المكية أو « المكاوية » . وفى بقية الفصول تحدثت عن القوانين الصوتية فى اللغة العربية .

وقد أدت هذه الدراسة الوصفية الى التأكد من ان القوانين اللغوية تسـير حسب نظام معين . وقد تتفق لغات العالم من ناحية او اكثر فى ترتيب هذه القوانين على مستوى واحد أو اكثر . غير أن هناك قوانين معينة (وهى قليلة نسبيا) يبدو

انها لا تخضع لترتيب معين . وهناك ايضا قوانين اخرى تكون فى مجموعها قوالب ولابد من ترتيبها فى مجموعها قبل أو بعد مجموعة أو مجموعات أخرى من القوانين .

ووظيفة العالم اللغوى الحديث (فى رأى النظرية التحويلية ـ التوليدية) هى تعيين القوانين فى لغة ما أو فى أكثر من لغة ، وتحديد النظام الذى تسير عليه هذه القوانين . وتفترض هذه النظرية أن هناك علاقة كبيرة بين اللغة والعقل وأن القوانين اللغوية تعطى صورة لطرائق التفكير الانسانى « وديناميكية » وحيوية العقل البشرى . ولربما يأتى اليوم الذى يمكن فيه أن يتوصل العلم الحديث الى تحديد العوامل والعناصر التى يتحرك فى اطارها العقل الانسانى فى نظام ودقة عجيبين .

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وفى معرض الحديث عن الأصوات العربية تظهر هذه الدراسة اننا نستطيع أن نختصر عدد العناصر التى تكون الحروف العربية فيمكننا أن نكتفى بوجود أربعة عشر عنصرا بدلا من الوحدات الكتابية التى تربو على الثلاثين والتى تسير عليها الدراسات اللغوية العربية حتى الآن . فالحرف العربى المستعمل فى الكلام يتركب من عناصر صوتية كثيرة . فالباء العربية مثلا تتركب من التقاء الشفتين ، واهتزاز الأوتار الصوتية ، واندفاع الهواء للخارج لا للداخل فى العادة ، الى غير هذه من الصفات الفسيولوجية والفزيائية . وقد قامت هذه العناصر على أساس معملى تجريبى فى المختبر الصوتى .

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وقد ركزت الاطروحة على دراسة القوانين التى تتعلق بالنبر «Stress» أو «Accent»أو «Prominence» فبينت علاقةالنبر بقوانيناخرى كحذف الحروف الصوتية أو زيادتها كما أن النبر قد يتغير تحت ضغط قوانين غير صوتية كالتأثير الصرفى أو التركيبى . وقد اتبعت فى عرض القوانين احدث الطرق اللغوية الرياضية والتى تتميز بالاختصار والدقة والوضوح . فمثلا القانون التالى (بطريقة مبسطة) :

ل ← ن / — + ن

وهذا يعنى أن اللام تصبح نونا اذا تبعتها نون ليست من اصل الكلمة كما فى قلنا ← قنا (فى بعض اللهجات العربية) . وفى كل هذه الأحوال وغيرها بينت الدراسة أن هناك جانبين من اللغة : الجانب التجريدى المثالى فى اللغة ثم الجانب الواقعى العملى الذى نسمعه فى حالة الحديث أو نقرأه فى حالة الكتابة . وقد يتفق الجانبان فى بعض الأحيان . الا انه وجد أن نقط الاختلاف بينهما فى العربية أكثر من نقط الالتقاء والاتفاق . وقد تختلف كلمتان على المستوى التجريدى بينما تتفقان

فى النطق اى على المستوى العملى كما فى قولنا : مليت عندما نعنى مللت (ملل) أو مليت (ملى أو ملأ) .

وأخيرا فان دراسة القوانين اللغوية وتجريدها أمران مهمان جدا . فدراسة القوانين من ناحية تعين على الكشف عن التطور اللغوى الذى سارت عليه اللغة . وترتيب القوانين فى لغة ما بطريقة طبيعية قد يعكس هذا التطور وخاصة اذا درست اللغة فى أكثر من مرحلة واحدة من تاريخ حياتها .

ومن ناحية أخرى فاننا نلاحظ أن اختلاف اللهجات فى لغة ما ليس الا اختلافا فى اطار نظام القوانين التى تؤلف قواعد اللغة . فقد يحدث ان لهجة لغة ما تستعمل نوعا او عددا معينا من القوانين لا تستعمله (أو قل أن تستعمله) اللهجة الأخرى . وقد يحدث ان لهجة ما تستعمل نفس القوانين التى تستعملها اللهجة الأخرى ، الا أن اللهجة الأولى تتبع ترتيبا مختلفا لهذه القوانين . وهذا يعنى أن اختلاف اللهجات لا يمس فى أكثر الأحيان جوهر اللغة ولذلك تبقى اللهجات غالبا مفهومة لدى متكلمى اللغة الواحدة .

وبالاضافة الى هاتين الفائدتين فان دراسة قوانين اللغة قد تساعد على التكهن بمصير اللغة والى اى اتجاه تسير عليه اللغة . ومن الطبيعى ان دراسة اللغة امر غير يسير فهى تعتمد على الفحص العلمى الدقيق والدراسة الميدانية المتكررة والتعمق ودقة الملاحظة والصبر والجلد على تسجيل الظواهر اللغوية المختلفة وتصميم اطار مناسب للصورة اللغوية التى تتألف من عناصر متناسقة احيانا ومتباينة احيانا اخرى .

١٢ ــ فرهود ، حسن شاذلى .
تحقيق كتاب الايضاح لأبى على الفارسى مع مقدمة تحليلية . جامعة لندن ، مدرسة الدراسات الشرقية والافريقية ، ١٣٨٦ هـ .
٢ جزء .

عاش ابو على الفارسى فى العصر العباسى ، وقضى شطرا كبيرا من حياته فى صدر الدولة البويهية التى قامت سنة اربع وثلاثين وثلثمائة ، فقد عاش بعد قيامها زهاء ثلاث واربعين سنة ، وفى هذه الحقبة نضجت العلوم وازدهرت الحركة الأدبية ، وشهدت أول تقنين للحضارة العربية فى جوانبها المختلفة من ادب ولغة وفلسفة .. الخ .

وكان بجانب هذه الدولة دويلات اخرى منها الحمدانية بالشام والأخشيدية بمصر والغزنوية بافغانستان وقد تنافست هذه الدويلات فى اكرام العلماء وترغيبهم

فى التأليف فى جو فريد من الحرية الفردية والاخلاص العلمى ، فلا عجب اذا رأينا الفارسى وقد عظم جاهه وتالق نجمه لأنه عاش فى عصر توافرت فيه وسائل التشجيع فهو أحد أولئك الذين كرسوا جزءا من حياتهم لدراسة اللغة العربية وخاصة نحوها وصرفها ، جلبت شهرته العلمية فى فروع اللغة الطلاب اليه فتتلمذ عليه من صاروا بعد ذلك علماء مبرزين . من أجل ذلك فان هذه الرسالة قد ادت بعض الحق نحو علم كبير له أهميته فى النحو هو أبو على الفارسى .

أما المصادر التى اعتمد عليها فى دراسة هذه الشخصية فقد كانت نادرة مطمورة فى المخطوطات المهملة ومنثورة فى مكتبات العالم على الرغم من أهميتها اللغوية والتاريخية . وقد أمكن العثور على مخطوطات عديدة من آثار الفارسى ومن بينها كتابه الايضاح موضوع هذه الدراسة .

ومما شجع على دراسة الفارسى وكتابه الايضاح انه ممن عنوا بكتاب سيبويه دعامة النحو العربى فجاء الايضاح مختصرا لكتابه وقد ألم بما فيه فى نظام علمى واضح ونهج منهجا جديدا وسلك فى تأليفه طريقة لم يسلكها عالم قبله ورتب مواده ترتيبا مبتكرا .

وقد قسمت هذه الدراسة الى خمسة فصول :

الفصل الأول تناول حياة الفارسى ونشأته وثقافته وعقيدته ، والفصل الثانى يتحدث عن شيوخه وتلاميذه ومؤيديه ومعارضيه .

وكان الفصل الثالث موضع الحديث عن النحو عند الفارسى وبيان مذهبه فيه ، وقد توصل هذا الفصل الى انه على الرغم من انتسابه الى المدرسة البصرية لم يكن مقلدا غيره من ائمة البصرة او الكوفة فانه كان صاحب مذهب مستقل انفرد به ، فكان يناقش الآراء البصرية والكوفية بعقله الواسع وتفكيره الصحيح ويختار منها ما يراه اولى بالاتباع وترك كل راى ضعيف لم يدعم بحجة أو برهان .

وخصص الفصل الرابع من البحث لمؤلفات ابى على . وختمت الرسالة بفصل عن كتابه الايضاح ووصفت فيه نسخة المخطوطة وصفا مفصلا .

١٣ — صينى ، محمود اسماعيل .
نظم الجملة فى لهجة الحضر بالحجاز ، جامعة جورج تاون ، ١٣٩٢ هـ .

تهدف الرسالة الى تقديم دراسة وصفية لنظام الجملة فى حجازية الحضر (اللهجة السائدة فى المدن الرئيسية مكة والمدينة وجدة) ، ويجرى التحليل فى اطار

المدرسة التاقميمية Tagmemics مع استخدام جزئى للطرق المتبعة فى المدرسة التحويلية Transformational .

١ - يعالج الفصل الأول الهدف من الرسالة والمادة التى اجرى عليها البحث ومنهج البحث والتحليل ، تتلوها قائمة بالوحدات الصوتية egmental phonemes للهجة المذكورة .

٢ - اما الفصل الثانى ففيه دراسة اولية لاقسام الكلام الرئيسية (الأسماء والصفات والأفعال والضمائر وأسماء العدد والأدوات) ، وتشمل الدراسة تحليلا موجزا لبنية الكلمة ووظائفها النحوية الأساسية وانواعها ، كما اعطيت نماذج لأنواع الأدوات وامثلة لها فى الجزء الثانى من الفصل .

٣ - وموضوع الفصل الثالث هو دراسة موجزة لأنواع الجمل الرئيسية major sentences مع وصف مفصل لأشباه الجملة minor sentences .

٤ - ثم يلى ذلك فى الفصل الرابع تحليل العناصر التى تؤدى وظيفة الأصل فى الجمل الأساسية the base slot fillers of the kernel sentences ، وتتلو التحليل مناقشة للجمل الفرعية dependent clauses ، هذا وتشمل الدراسة ثمانية أنواع من الجمل الأصلية independent clauses خمسة منها ذوات افعال متعدية وواحدة ذات فعل لازم واثنتان اسميتان equational ، اما الجمل التابعة dependent فصنفت الى : الموصولة والتابعة من النوع الأول والتابعة من النوع الثانى .

٥ - الفصل الخامس يعالج العناصر الفرعية فى الجمل (مثل « المستفيد » وظرف المكان والزمان . . الخ) وتشمل المناقشة هذه العناصر وترتيبها .

٦ - اما الفصل السادس فيعالج بنية الجمل الناقصة phrases ونعالجها تحت عناوين ستة : الجمل الناقصة الاسمية والوصفية والعدد والفعلية والظرفية والمجرورة ، وتقسم بعض هذه الجمل الناقصة الى اقسام اصغر وهى : الجمل الناقصة ذوات أكثر من عنصر رئيسي واحد exocentric والجمل ذوات العنصر الرئيسى الواحد endocentric وتقسم الأخيرة بدورها الى الجمل الناقصة التى تتكون من صفة وموصوف head-modifier والجمل الناقصة ذوات العناصر المعطوفة co-ordinate .

٧ - والفصل السابع يعالج طرق تحويل الجمل الأساسية kernel Sentences الى جمل محولة derived مثل الجمل التى بها افعال مبنية للمجهول والمنفية

والأمرية من جهة ثم الجمل الكبرى Topical والمركب complex والمعطوفة compound من جهة أخرى

٨ — وتناقش فى الفصل الثامن والأخير القواعد المتعلقة بالتطابق بين الفعل والفاعل من ناحية والتطابق بين الصفة والموصوف من ناحية اخرى .

١٤ — الفضلى ، عبد الهادى محسن .
قراءة ابن كثير وأثرها فى الدراسات النحوية . جامعة القاهرة ، ١٩٧٥
٨١١ ص .

ضمت الرسالة تمهيدا وثلاثة ابواب واربعة ملاحق وخاتمة .

احتوى التمهيد استعراضا لحياة ابن كثير .

وخصص الباب الأول لـ (القراءات) مشتملا على الفصول التالية وعناوينها :

نشأة القراءات وتطورها . التعريف بالقراءات . مصادر القراءات . اختلاف القراءات واسبابه . الاختيار فى القراءات . المقياس القرائى . العلاقة بين القراءات والدراسات النحوية .

وخصص الباب الثانى لـ (قراءة ابن كثير) مشتملا على الفصلين المعنونين بـ : تعريف بقراءة ابن كثير . نصوص قراءة ابن كثير .

وخصص الباب الثالث لـ (اثر قراءة ابن كثير فى الدراسات النحوية) مشتملا على الفصول التالية عناوينها : اثر القراءات عامة فى النحو . منهج البحث . الاصوات . الصرف . النحو . دراسة تطبيقية لحرف اللام .

اما الملاحق فكانت فى : الاسلوب . اللهجات . المعجميات . التطور اللغوى .

وضمت الخاتمة : خلاصة البحث ونتائجه .

واهم النتائج التى انتهى اليها المؤلف هى :

١ — ان مكة المكرمة كانت من حواضر الدراسات النحوية فى فترة ولادة النحو ونشوئه . اى فى النصف الثانى من القرن الأول الهجرى .

٢ — ان ابن كثير كان نحويا من رواد علم النحو الأوائل .

٣ ـ استشهد العلمـاء بقراءة ابن كثير فى الأصوات والصرف والنحو والبـلاغة واللهجات والمعجميات والتطور اللغوى .

٤ ـ قارنت قراءة ابن كثير النحو شاهدا على قواعده ومسائله منذ بدء التـأليف فيه حتى الآن .

٥ ـ ان جواز الجمع بين الساكنين غير مقصور على ما كان أول الحرفين منهما مدا ـ كما هو راى جمهور النحاة ـ وانما يشمل ما كان الحرف الثانى منهمـا مدغما ، وما كان الحرف الأول منهمـا حرف مد ولين ، استنادا الى قراءة ابن كثير .

٦ ـ جواز قصر الممدود فى النثر ، استنادا الى قراءة ابن كثير .

٧ ـ جواز تقديم الأسلوب البلاغى على القاعدة النحوية ، استنادا الى قراءة ابن كثير .

٨ ـ ان قراءة ابن كثير مما حفظ لنا لهجة اثبات حرف العلة حالة الجزم .

٩ ـ ان ابن كثير كان يوافق فى كثير مما انفرد به الأصل النحوى كما فى وصله هاء الكناية ووصلة ميم الجمع .

١٠ـ ان ابن كثير كان يوافق الاستعمال العربى الشائع فيما اختلف فيـه القراء واعتبر من القراءات المشكلة نحويا .

١١ـ ان اختياراته ـ غالبا ـ جاءت موافقة للغة قريش والحجاز .

١٢ـ ان قراءة ابن كثير حفظت لنا (١١٦) لهجة منسوبة وغير منسوبة ، كمـا كان ابن كثير يؤثر فى أغلب اختياراته اللهجات العربية الشائعة .

١٣ـ أن كثيرا من الألفاظ المعجمية فى القراءات قد أغفلها مؤلفو المعاجم العربية . وغيرها .

أمثـــال

١٥ـ الضبيب ، احمد محمد .
دراسات نقدية مقارنة للأمثال العربيـــة القديمة فى كتاب مجمع الأمثـــال للميدانى . جامعة ليدز ـ قسم الدراسات السامية ، ١٣٨٦هـ .

تتكون هذه الرسالة من مقدمة مسهبة واربعة أجزاء :

فى المقدمة تحدث المؤلف عن اصطلاح « مثل » عند العرب والساميين واليونان والباحثين المحدثين من علماء الغرب . ثم عقب على ذلك بدراسة تاريخية لحركة التـأليف فى الأمثال عنـد العرب منـذ القرن الأول الهجرى حتى القرن الخامس الهجرى وهو الزمن الذى ظهر فيه كتاب « مجمع الأمثال » الميـدانى . ثم أفرد المؤلف فصلا لأبى الفضل أحمد بن محمد الميدانى مؤلف « مجمع الأمثال » تحدث فيه عن حياته وآثاره مع دراسة تفصيلية لمنهجه فى « مجمع الأمثـال » وبحث فى الدراسات العلمية حول الكتاب المذكور .

والجزء الاول من الرسالة يهتم بدراسة « الشكل » فى الأمثال العربية القديمة سواء من الناحيـة التركيبية النحوية او الأسلوبية البلاغيـة مع استقراء للصيغ الشائعة المهمة .

والجزء الثانى يحلل الأمثال القديمة حسب « الموضـوع » . ونظرا لكثرة الموضوعات التى يمكن ان تندرج تحتها الأمثال العربية القديمة وتشابكها فقد رئى الاقتصار على الموضوعات البارزة والمهمة . وقد حظيت الطبيعة (الحية والصامتة) بنصيب كبير فى هذا القسم من الرسالة اذ كانت أكثر ما يلفت النظر فى موضوعات الأمثال العربية القديمة . والى جانب الطريقة الاحصائية التى اتبعها المؤلف فى هذا القسم فقد ناقش معظم المظاهر الطبيعية التى شغف العرب بهـا فى امثالهم كمـا خصص قدرا كبيرا من هذا الجزء لدراسة امثال الحيوان عنـد العرب ومواقفهم المختلفة منه واستمدادهم أكثر هذه الأمثال من طبائعه وعاداته .

وقد راى المؤلف فى هذا القسم من الرسالة ان من المفيد أن يوازن بين دور الحيوان فى الأمثال العربية القديمة ودوره فى الشعر العربى القديم فعكف على دراسة ذلك مستعينا برسالة الدكتور محمد النويهى عن الحيوان فى الشعر العربى القديم قدمها لمدرسة الدراسات الشرقية والافريقية فى لندن . وقد انتهت هذه الموازنة الى الكثير من النتائج الجيدة .

والى جانب ذلك فقد درس المؤلف فى هذا الجزء من الرسالة الأمثال المتعلقة بالحياة الاجتماعية ، والعادات والتقاليد ، والأمثال الطبية ، وامثال الطقس ، والأمثال الحكمية عند العرب القدماء .

وفى الجزء الثالث عالج المؤلف موضوعى « الزمان والمكان » اللذين ترجع اليهما الأمثال العربية القديمة ، وقد بدأ هذا الجزء بمناقشة ما كتبه العلماء حول هذا الموضوع مستعرضا آراءهم ناقدا اياها . ثم بين خطته فى هذا الشأن والأسس التى بنى عليها دراسته فى التاريخ لهذه الأمثال والاستدلال على الأماكن التى نبعت منها . وقد قسم الأمثال الى قسمين كبيرين :

١ ــ الأمثال الجاهلية .

٢ ــ الأمثال الاسلامية القديمة .

ثم عالج كل قسم من هذين القسمين حسب المكان ، فارجع بعض الأمثال الى الجزء الشرقى من الجزيرة العربية ودرس القبائل التى انتجته والأماكن التى ظهر فيها ، كما أرجع بعضها الى القسم الغربى ودرسه فى اماكنه التى ظهر فيها ذاكرا خصائص كل قسم من هذين القسمين سواء من حيث الشكل او الموضوع .

اما الأمثال الاسلامية القديمة فقد عنى بها من حيث الخصائص الأسلوبية والموضوعية ، ثم عقد المؤلف موازنة بينها وبين الأمثال الجاهلية .

والجزء الرابع من الرسالة خصص لموازنة الأمثال العربية القديمة بامثال الشرق الأدنى القديم من حيث :

(أ) الأفكار المشتركة .

(ب) الأفكار الخاصة .

آداب اللغـات

أدب عربى

١٦ ــ الحازمى ، منصور ابراهيم .
الرواية التاريخية فى الأدب العربى الحديث . جامعة لندن ــ مدرسة اللغات الشرقية والافريقية ، ١٣٨٦ هـ .

تتناول هذه الدراسة تطور الرواية التاريخيـــة فى الأدب العربى الحديث فى ضوء المعالم الكبرى للاتجاهات الفكرية والادبية والثقافية فى العالم العربى من سنة ١٨٧٠ الى سنة ١٩٦٣ م ، وقد قسمت الرسالة الى ثلاثة ابواب يهتم كل منهـــا باحدى المراحل الرئيسية لذلك التطور ، كما صدرت بمقدمة نوقش فيها اصطلاح « الرواية التاريخية » مع تتبع جذورها فى التراث العربى ونماذجهـــا الحديثة فى الأدب الغربى .

اما الباب الأول من الرسالة : (ظهور الرواية التاريخية العربية من سنة ١٨٧٠ الى سنة ١٩١٤ م) فيتناول الفصل الأول منه أهم التيارات السياسية الســـائدة خلال هذه الحقبة ، وتاثير الوضع الخاص للروائيين اللبنانيين والسوريين المسيحيين فى اختيارهم للعصر التاريخى ومعالجتهم لأحداث التاريخ ، كما يتناول الفصل أيضا آثار سليم البستانى التى تعتبر ارهاصا لظهور هذا النوع القصصى فى لغة الضاد . اما الفصل الثانى فقد خصص جميعه لتوضيح الدور الذى قام به جورجى زيدان فى ارساء دعائم الرواية التاريخية فى صورتها الشعبية المعروفة بها آنذاك ، بينمـــا يتتبع الفصل الثالث التاثيرات التى تركها زيدان فى معاصريه من الروائيين العرب واولئك الذين اتوا فى اعقابه ، وقد بحثت هذه التاثيرات من خلال الذوق الشعبى العـــام . والفصل الرابع يبحث فى تيار « الوطنية المحلية » ولا سيما فى المحاولات القصصية التى خلفها احمد شوقى .

والباب الثانى من الرسالة : (مرحلة انحدار من سنة ١٩١٤ الى سنة ١٩٣٨م) فيتناول الفصل الأول منه الأسباب التى أدت الى الفتور الذى لحق بكتابة الرواية الرواية التاريخية خلال هذه الحقبة . ويعالج الفصل الثانى تاثير الشعور العربى فى اختيار الروائيين للعصر التاريخى وتفسير التاريخ ، وكذلك ــ فى جانب البنـــاء القصصى ــ الصراع بين الاتجاه الصحفى « التجارى » والاتجاه « الفنى » . ويدرس الفصل الثالث مجمـوعة من آثار الروائيين العرب تمثـل هذين الاتجاهين كآثار ابراهيم رمزى واحمد خيرى سعيد ونقولا الحداد الخ .

اما الباب الثالث : (ازدهار الرواية التاريخية وما لحقها من تطورات اخرى من سنة ١٩٣٩ الى سنة ١٩٦٣ م) فيبحث الفصل الأول منه فى العوامل الاجتماعية والسياسية التى أدت الى ازدهار هذا النوع الادبى خلال العقد الرابع من هـذا القرن ، ثم العوامل التى أدت الى اضمحلاله مرة أخرى . كما يبحث ايضا فى النزعة الانسانية واثرها فى معالجة التـاريخ الوطنى المحلى . اما الفصل الثانى فيحـدد اتجاهات ثلاثة فى كتابة الرواية التاريخية العربية

١٧ ــ الشامخ ، محمد عبد الرحمن .
النثر الأدبى فى الحجاز ١٩٠٨ ــ ١٩٤١ مع نبذة عن تاريخ صحافة هـذه الفترة . جامعة لندن ــ مدرسة الدراسات الشرقية والأفريقية ، ١٣٨٧ هـ .

تتناول هذه الرسالة النثر الأدبى فى الحجاز فى الفترة من ١٩٠٨ الى ١٩٤١ م ، وتحاول ابراز اهم مظاهر تطوره التى تمثلت فى تخلى الادباء تدريجيا عن الأفـكار والأنواع الأدبية التقليدية المتوارثة ، وتبنيهم للمفاهيم والأنواع الأدبية الحديثة التى وجدت فى الأدب العربى المعاصر على اثر اتصاله بأدب الغرب . وحيث ان ما حدث فى أدب الحجاز من تطور كان ذا صلة قوية بالأحداث السياسية المعاصرة فى الحجاز ، فقد قدم لكل باب من الأبواب الثلاثة التى تتكون منها هذه الدراسة بمقدمة قصيرة عن الأحوال السياسية التى اثرت فى شخصية أدب الحجاز فى كل مرحلة من مراحل هذه الفترة .

يتكون الباب الأول « أواخر العهد العثمانى ١٩٠٨ ــ ١٩١٦ م » من فصلين ، الفصل الأول يعالج بطريقة التحليل النصية ــ التى اتبعت خلال هذه الدراسة ــ كلا من النثر التقليدى الذى كان ذا صلة ضعيفة بظروف عصره ، وفن المقال الذى كان ظهوره حينئذ فى ادب الحجاز يمثل بداية ادب الحجاز الحديث ، اما الفصل الثانى فيتحدث عن نشأة الصحافة فى الحجاز ، هذه الصحافة التى كانت من اهم العوامل فيما حدث فى هذا الأدب من تطور وتغير .

وقد خصص الباب الثانى للفترة الهاشمية (١٩١٦ ــ ١٩٢٥) . فالفصـل الأول يتحدث عن الدور الذى قامت به الصحافة الهاشمية فى ميدان الادب ، اما الفصل الثانى فيحلل تطور المقالة من مرحلتها الأولى الى مرحلة اخرى نمت فيها واصبحت اكثر أنواع الأدب سيطرة على الحياة الأدبية فى الحجاز . ويشير هـذا الفصل كذلك الى تلك الحركة الأدبية الجديدة التى بدات فى الظهور فى أواخر هذه الفترة على أيدى بعض كتاب الحجاز الناشئين .

أما الباب الثالث من هذه الرسالة فيتناول أوائل العهد السعودى (١٩٢٥ ــ ١٩٤١) حيث بلغ النثر الأدبى فى الحجـاز مرحلة من مراحل النضج فى الشـكل

والمضمون . ويصور الفصل الاول أهمية الصحافة السعودية كعامل من أبرز العوامل التى شجعت هذا الادب ، وكوسيلة أساسية من وسائل نشره . أما الفصل الثانى فيتتبع الدور الذى قام به كتاب الحجاز الناشئون فى تطوير أدبهم ، ويتحدث عن استمرار نمو فن المقالة وازدهاره مشيرا الى ما اصطبغ به آنذاك من صبغة نقدية . ويناقش الفصل الثالث النثر القصصى فى الحجاز الذى ظهر حينئذ ، والذى يمثله فن الرواية الذى ما زال فى مرحلته التجريبية ، وفنا القصة القصيرة والمسرحية اللذان وجد فيهما شيء من النمو والأصالة .

١٨ — الشويعر ، محمد بن سعد بن عبد الله .
أبو اسحاق المصرى القيروانى والنقد فى كتابه زهر الآداب . جامعة الأزهر ، ١٩٧٧
٥٧٨ ص .

فهذا البحث عن اديب . ومؤلف من اعلام وشعراء القيروان ، حاضرة شمال افريقيا ، ابان ازدهار الحضارة الاسلامية ، فى القرن الرابع الهجرى ، وهمزة الوصل بين المشرق العربى . والأندلس ، ذلك الأديب هو ابو اسحاق ابراهيم بن على الحصرى .

وفى بحثى هذا سأتناول : شخصيته وادبه ، والنقد فى كتابه زهر الآداب ، هذا الكتاب الذى ملأ بصيته ، وسمعته الأدبية ، آذان المتتبعين لتراثنا الأدبى .

وقد دفعنى الى هذا البحث امور منها :

اولا : رغبة المشاركة فى تلك الجهود التى اتجهت اخيرا الى العناية بالأدب المغربى وتراثه ، والكشف عن جوانبه ، واستجلاء ظواهره ، ليأخذ مكانته فى العناية والدراسة ، الى جانب الأدب المشرقى ، الذى نال حظا كبيرا من عناية الدارسين ، والباحثين .

ثانيا : التعريف الصحيح الوافى بذلك الأديب الكبير ، الذى لم يجد من ينصفه أو يوفيه حقه من العناية ، والذى يختلط فى اذهان كثير من الناس بالحصرى الضرير ، صاحب قصيدة (يا ليل الصب متى غده) .

وقد تبين لى فعلا من دراسته انه رائد من رواد الادب ، والنقد فى شمال افريقيا ، وانه استاذ جيل لكثير من الاعلام الذين تأثروا به ، واخذوا عنه ، وذاع صيتهم أكثر منه كابن رشيق (... — ٤٥٦ هـ) .

ثالثا : أن الحظ اسعفني بالعثور على مخطوطة نادرة له ، لم ينتبه اليها أحد ،

ولم يكشف النقاب عنها من قبل ، تلك هى كتاب : (المصون فى سر الهوى المكنون) ، وهو كتاب فى الحب عرفت به ، ودرسته دراسة وافية ، رجحت فيها بالموازنة ، والمقارنة ، تأثر ابن حزم الأندلسى (٣٨٤ — ٤٥٦ هـ) به فى كتابه : (طوق الحمامة) الذى اشتهر بين الناس .

رابعا : أن كتابه (زهر الآداب) الذى يعد من امهات كتب الأدب ليس كتاب الأدب فحسب كما عرفه الناس ، بما جمع بين دفتيه من احسن المختار ، من المنظوم والمنثور .

ولكنه الى جانب ذلك يعد ايضا كتاب نقد ، وان لم يوضع اساسا لذلك .

فمن خلال دراستى الفاحصة له ، ومن خلال اختباراته ، وتعليقات الحصرى عليها ، استطعت أن استخلص بالنظر الواعى ، والجهد الجاهد كثيرا من قضايا النقد ، وأن استشف آراءه فيها .

على انه كثيرا ما تعرض صراحة لبعض القضايا ، مبديا رايه فيها ، مؤيدا او مبتدعا ، وعلى الأخص فى الموازنات ، والبديع . على انه مع ذلك استاذ الناقد المشهور ابن رشيق (... — ٤٥٦ هـ) الذى تأثر به فى كتابه العمدة ، كما هو مفصل فى هذه الدراسة .

هذا هو الحصرى كما ينبغى ان يحتل مكانته بين الأدباء ، والنقاد ، ويأخذ حظه من عناية الدارسين والباحثين .

وهذا هو كتابه (زهر الآداب) كما يجب ان يوضع بين كتب النقد الادبى الى جانب كونه كتاب ادب ، يسجل اروع ما جاءت به قرائح الكتاب ، والشعراء .

وقد اقتضى هذا البحث فى ذلك كله ، ان افصل القول فيه موزعا على ثلاثة ابواب على النحو التالى :

الباب الأول : عن الحصرى ، وعصره : وتحته فصلان :

١ — **الفصل الأول :** عصر الحصرى بما فيه من احداث تاريخية ، ومن تصوير للبيئة التى عاصرها ، وعاش فيها .

وقد قدمت هذا الفصل على التعريف بالحصرى ، لأننا لا نتصور احداث حياته ، وحقيقة نشأته ، ومواهبه ، وثقافته ، دون ان يوجد تصور مسبق بأحداث عصره ، وبيئته ، لان الاديب ابن بيئته ، ومتاثر باحداث عصره .

٢ ـ **الفصل الثانى :** عن حياته وثقافته : وموضوعات هذا الفصل تسير وفق المراحل الزمنية لحياته التاريخية ، ونشأته الثقافية ، منذ ولد الى أن مات ، ومنذ كان طالب علم ، الى ان كان أديبا ومؤلفا ورائدا .

وقد وقفت طويلا عند تاريخ وفاته ، ذلك الذى اختلف فيه المؤرخون ، وانتهيت من مناقشة الآراء المختلفة الى الرأى الراجح بالأدلة والبراهين .

ولان تاريخ ولادته يكاد يكون مجهولا عند المؤرخين ، فقد ناقشت الآراء التى حددت عمره ، وفندت ما ذهبوا اليه ، هادفا الى تصحيح الخطأ الذى اعتمدوا عليه فى هذا التحديد ، وخرجت من ذلك بالرأى الصحيح الذى لم يسبقنى اليه أحد .

اما الباب الثانى : فهو عن أدب الحصرى : وقد قسمته الى اربعة فصول :

١ ـ **فى الفصل الأول :** تتبعت شعره وجمعته من مختلف المصادر القديمة والحديثة ، ومما بثه فى كتبه التى طبعت ، والتى لم تطبع ، وصنفت فنونه الشعرية ، واغراضها ، ثم قومت هذا الشعر تقويما فنيا ، مستظهرا خصائصه التعبيرية والفكرية ، فى تحليل فنى مستوعب ؛ وتعد هذه الدراسة الفنية أول دراسة لشعر الحصرى ، حيث لم يلتفت اليه أحد من قبل ، كشاعر جدير بالدراسة المستقلة ، واذا كان هناك من حاول أن يجمع شعره ، فقد استدركت كثيرا مما لم يجمعه أحد .

وفى نهاية هذا الفصل اوضحت مكانته فى الشعر ، واستعرضت آراء النقاد فيـه .

٢ ـ **اما الفصل الثانى :** فقد خصصته لدراسة نثره ، وقد اعتمدت فى ذلك على النتف المبثوثة فى كتبه ، وعلى مخطوطته التى اكتشفتها . وهى : (المصون فى سر الهوى المكنون) .

وعلى الرغم من ان بعض الكتاب اشار الى ان الحصرى قد نقل فن المقـامة المشرقية الى المغرب ، فان نثره لم يحظى بدراسة الدارسين ، اذا استثنينا بعض اللمحات عند الدكتور زكى مبارك فى كتابه النثر الفنى .

وقد تتبعت فنون نثره ، وحللتها ، وقومتها تقويما فنيا ، مبينا خصائصها وسماتها ، وخرجت من ذلك الى ان البديع الهمذانى (٣٥٨ ـ ٣٩٨ هـ) كان امامه فى فن النثر ، كما كان أبو تمـام (١٨٨ ـ ٢٣١ هـ) امامه فى الصنعة الشعرية على حد قول بعض النقاد ، على أن الحصرى هو أول من كشف عن اولية المقامة عند ابن دريد .

٣ ـ **أما الفصل الثالث :** فقد فصلت الحديث فيه عن المخطوطة التى كشفت النقاب عنها للحصرى وهى : (المصون فى سر الهوى المكنون) ، وهى الكتاب الوحيد للحصرى ، الذى يدور حول موضوع واحد وهو الحب .

ولأهمية هذا الكتاب ، والى أن يتاح لى تحقيقه ونشره باذن الله ، افضت فى الحديث عن التعريف به وعما حواه من مضمون ، وحللت كثيرا من نصوصه ، وعرضت فى مقابلتها نصوصا من كتاب (طوق الحمامة) لابن حزم (٣٨٤ ـ ٤٥٦ هـ) ، ووازنت بينهما جميعا ، وخرجت من ذلك كله ، ومن الأدلة التاريخية ، وغيرها الى ترجيح تأثر ابن حزم بالحصرى فى هذا الموضوع .

وهذا الفصل بما فيه من كشف ، ونتائج جديدة كل الجدة ، لم يسبقنى ـ بحمد الله ـ اليه أحد قط .

٤ ـ اما الفصل الرابع : فقد جعلته للتعريف بكتاب زهر الآداب ، الذى يتناول البحث فى قضاياه ، وقد تتبعت مخطوطاته ، ومطبوعاته ، وتحقيقاته ومصادره، واوضحت منهجه ، وبواعث تأليفه ، ولخصت مضامينه ، وبينت قيمته الأدبية ، واستعرضت آراء النقاد فيه .

واشرت الى المخطوطة التى اختصرته ، ولم تطبع للآن ، ودللت عليها ، وعرفت بها ، وقارنت بينها وبين الأصل الذى اختصره عنه .

اما الباب الثالث : فهو عن القضايا النقدية فى زهر الآداب ، وقد وزعته الى سبعة فصول :

١ ـ **الفصل الأول :** فى السرقات الأدبية ، وقد قدمت القول فيها لأنها اكثر القضايا التى احتفل بها الحصرى ، وذلك بحكم استخلاصه للسرقات من خلال جمعه بين الأشباه والنظائر فى مختاراته .

وقد رايت فى بعض احكامه كثيرا من الاجحاف ، او التعنت ، فناقشت احكامه على ضوء قواعد وقوانين ذكرها النقاد ، والبلاغيين فى احكام السرقات .

٢ ـ **الفصل الثانى :** الموازنات الأدبية ، وهى وثيقة الصلة بالسرقات الأدبية وقد عرضت لكثير من هذه الموازنات بالتحقيق والتعليق ، مستظهرا القيمة الأدبية من وراء ذلك .

كما اوضحت براعة الحصرى ، وتبريزه فى هذا المجال ، مما يدل على انه ناقد حصيف ، ذو حس مرهف ، وموهبة اصيلة .

٣ ـ **أما الفصل الثالث** : فقد خصصته للبديع ، وفن البديع من أظهر الفنون فى كتاب الحصرى ، ولعله أبرز الفنون التى تتجلى فيهـا شخصيته النقدية ، وآراؤه النقدية الفنية ، فقد توسع فى التعليق عليه ، وأفاض فى تفسيره ، وتقويمه .

ولئن كان الحصرى فى معظم أحواله ناقدا ذاتيا ، يعتمد على التذوق والتأثر الشخصى ، والأحكام العـامة ، فانه يتجلى موضوعيا فى هـذا الباب الذى استقصى كثيرا من فنونه ، وعلى الأخص القلب والتضمين .

وقد ظهر تأثره فى هذا المجال واضحا فى تلميذه ابن رشيق (... ـ ٤٥٦ هـ) الذى أخذ عنه وتوسع ، واضاف ، كما أرجعت آراء ابن رشيق الى أصلها عند الحصرى . وقد ناقشت راى الحصرى فى قلب المعانى ، كما استدعى ذلك مناقشة الجاحظ (١٦٣ ـ ٢٥٥ هـ) من قبله فى هذا الموضوع .

٤ ـ **الفصل الرابع** : النقد المجمل ، وقد استعرضت فيه النقد المجمل بصورتيه : الصورة الأولى : الحكم على اديب بالاساءة لهفوة نادرة ، أو بالاحسان لبيت يتيم .

وقد استعنت بآراء الجرجانى (... ـ ٣٩٢ هـ) فى نقد هذا المنهج ، واستبنت من زهر الآداب أن الحصرى لا يسير على هذا النهج .

والصورة الثانية : اعطاء تقريرات ، او نقدات بكلام مجمل ، غير معلل ، ولا مدلل عليه . وعلى هذا النهج سار الحصرى فى كثير من المواطن ، حيث كان يكتفى بالاستحسـان والاستجادة ونحو ذلك من الأحكام العامة ، التى كنـا نعود بها الى المقاييس العامة ، لنستنبط مذهبه واتجاهه .

٥ ـ **الفصل الخامس** : طرائق النثر الفنى فى زهر الآداب ، وقد حرصت فى هذا الفصل على ان اضع السمات والمعالم لكل مذهب من مذاهب النثر الفنى التى سجلها الحصرى ، متمثلة فى مثل الجاحظ (١٦٣ ـ ٢٥٥ هـ) والأحنف بن قيس (٣ ق هـ ـ ٧٢ هـ) ، وابن العميـد (.. ـ ٣٦٠ هـ) وبديع الزمان الهمذانى (٣٥٨ ـ ٣٩٨ هـ) ، وغيرهم .

٦ ـ **الفصل السادس** : ابو تمـام فى زهر الآداب : لقـد بينت فى تعـريفى بأدب الحصرى ، انه يتمذهب فى النثر ببديع الزمان الهمذانى (٣٥٨ ـ ٣٩٨ هـ) ، كما انه يتمذهب بمذهب أبى تمام (١٨٨ ـ ٢٣١ هـ) فى الصنعة الشعرية من حيث الاغراق فى الاستعارات ، والمجاز ، والاسراف فى التشبيه والمحسنات . وكما كشفت عن مذهبه فى النثر فى الفصل الخامس ، وابنت عن من تأثر به فيه ، صنعت هذا الصنيع فى الشعر .

وقد بلغ من تأثره بأبى تمام ، وتأثره به ، انه أورد له فى كتابه من الأشعار أكثر مما أورد لشاعر آخر ، وانه أكثر من ايراد شعر الشعراء ، الذين ساروا على منهج أبى تمام (١٨٨ — ٢٣١ هـ) .

٧ — **والفصل السابع** : قضايا متفرقة : وقد جمعت فى هذا الفصل القضايا النقدية الأخرى ، التى الم بها الحصرى الماما عابرا ، دون ان يحفل بها ، أو يقف عندها ، وقد جاءت متناثرة فى كتابه هنا وهناك ، فى صورة لا تكاد تسترعى انتباه القارىء ، أو تستوقفه ، وذلك مثل قضايا : (القدماء والمحدثون — الطبع والصنعة — اللفظ والمعنى) ونحو ذلك من القضايا التى مسها مسا خفيفا ، وألم بها الماما عارضا .

النثـــــــر

١٩ ـ آل مبارك ، عبد الله .
ادب النثر المعاصر فى شرقى الجزيرة . جامعة عين شمس ، ١٣٨٩ هـ .

تقوم هذه الدراسة على مدخل وابواب ثلاثة ، فقد كان ضروريا أن تبدأ بتحديد العوامل الفعالة فى النشاط الأدبى فى شرقى الجزيرة العربية على أساس أن الأدب واحد من أوجه النشاط الانسانى ، التى تتأثر بعوامل كثيرة ، منها ما هو عام فى كل البيئات ، ومنها ما هو خاص محلى او وطنى وقد درست هذه العوامل فى المدخل الذى صدر به البحث ، فكان هذا المدخل بمثابة الحقائق الأساسية ـ التى تلقى اضواءها على كل المـادة العلمية المدروسة فى أبواب الدراسة وفصولها ـ فقـد وضع المنظور العام لديار شرقى الجزيرة من حيث المكونات والتأثرات وصدى كل ذلك فى حياة الأدب والفن هناك . وانتهى هذا المدخل الى وضع صورة ـ ربمـا لأول مرة ـ للاطار التاريخى الحضارى لمنطقة شرقى الجزيرة العربية ، بكل ما يتدخل فى صنع هذا الاطار من مكونات ذاتية محلية وتأثيرات عربية قديمة السمات النفسية والفكرية للجيل الجديد بهذه الديار . وقد اتجهت القصة القصيرة لدى هذا الجيل المعاصر الى حياة الانسان البسيط .

وتناول فى الفصل الثانى (فن الرواية) فى النتاج الأدبى المعاصر بشرقى الجزيرة متتبعا خطوات نشأته ، ومميزا بين لونين من ذلك الفن . الأول الرواية التاريخية ، والثانى الرواية الاجتماعية ، ووقف عند الأعمال البارزة فى كل من اللونين محللا ودارسا ، ثم قوم محاولات الرواية فى ادب المنطقة تقويما عاما . وفى الفصل الثالث من هذا الباب درس المسرحية النثرية فى نتاج ادباء المنطقة دراسة تاريخية ، تبين منها ان البيئة الأساسية لهذا الفن هى بيئة الكويت من ناحية امكانيات التنفيـذ والعرض والجمهور ، وبيئة البحرين من حيث تطور هذا اللون من الأدب وتعرض فى هذا الفصل للمشكلات الفكرية والفنية ، التى يصـادفها ادب المسرحية فى نثر شرقى الجزيرة المعاصر .

وكان طبيعيا فى هذا الباب ـ الى جانب التحليل التاريخى والتحديد للمضامين والأفكار ـ ان يهتم الباحث بأمرين فكان ان وقف اولا عند الجوانب الفنية فى كل ما عرضه وقومه من اعمـال محكما الأصول التعبيرية لـكل فن من الفنون الثلاثة وانتهى فى هذه الوقفات الى تقويم فنى من واقع النصوص المدروسة والى تنـاول

مشكلات فنية محدودة ـ كالبناء الروائى والصراع المسرحى والحوار وقضية الفصحى والعامية ـ فى ضوء من آراء النقاد المعاصرين .

ثم حاول اخيرا استخلاص المذهب الفنى من واقع النتاج الأدبى الذى درسه مستضيئا ايضا هنا بمادته العلمية من ناحية وباجتهادات الدارسين والنقاد من ناحية ثانية . وقد ادى به تناول هذا الأمر* ان لمس جوانب الحوار من حياتنا الثقافية العربية حول الرومانسية والواقعية فى الفن وما دار من جدل فكرى وصراع حول مفهوم الأدب ودور الأديب ومفهوم الالتزام وموقف الفنان بين طبيعة الفن ومطالب مجتمعه .

ومعاصرة ، وروافد اجنبية شرقية وغربية . والجديد فى هذا الاطار ايضا ايضاح صورة هذه المنطقة كوطن من أوطان الأمة العربية مؤثرا فى نهضتها الحديثة ومتأثر بها .

واختص الباب الاول بدراسة : (دور شرقى الجزيرة فى تكوين التراث العربى) فتناول الفصل الأول منه (النثر فى شرقى الجزيرة بين القديم والحديث) محددا دور شرقى الجزيرة فى تاريخ الادب العربى ، وقد اظهر هذا التحديد ان ادب المنطقة جزء هام من الأدب العربى فى كل عصوره منذ الجاهلية ، وانه يحمل ذات الخصائص والمقومات المعنوية والفنية . وقد اتصل تراث المنطقة وامتد فى ادب النهضة الحديثة ، وهنا درست الخصائص الفكرية والفنية لنتاج النهضة من النثر فبدأ الباحث بتحديد عوامل الاحياء والنهضة فى المنطقة ، وعرف بالنظام التربوى التقليدى فيها ثم قام بتحليل الأشكال النثرية التقليدية والمستحدثة التى انتجها رجال النهضة من أئمة الاحياء الدينى والاصلاح الاجتماعى ، وبين النواحى التعبيرية والفكرية فى تلك الأشكال والأساليب . وفى الفصل الثانى من هذا الباب تناول الباحث (بواعث التجديد فى النثر) وربط التجديد فى الأدب والتجديد فى الحياة بابراز العوامل التى نشأت فى المنطقة بعد الحرب الثانية ، وكانت حوافز قوية للتجديد فى الحياة والأدب هناك . ثم ركز على دور الوعى العربى والبيئة التعليمية الحديثة ، والتعليم الجامعى ، والعالى ، والبعثات والصحافة ، والنوادى الأدبية ، والجمعيات الثقافية ، والمكتبات العامة ، وآثار كل ذلك فى تكوين جمهور واسع من المثقفين ، وصدى هذا فى حياة الأدب والآفاق التجديدية ، التى يعيشها الجيل الجديد المعاصر من أدباء المنطقة .

وقد خصص الباب الثانى لدراسة (النثر الموضوعى فى نتاج شرقى الجزيرة) ، فأفرد الفصل الأول لتناول (التاريخ الأدبى والدراسة الأدبية) ، وتعرض القسم الأول منه لحركة التاليف فى تلك الديار مؤرخا لبدايتها فى العلوم الدينية واللغوية وتطورها بتأثير رجال الدعوة من بيوت العلم الدينى ، ثم انتهائها الى احياء علم الرجال القديم الذى جدد على ايدى ائمة النهضة ، فارتدى ثوب التاريخ العام

والتاريخ الأدبى ، ثم قوم هذا الفصل جهود جيـل الرواد فى تطوير طرائف التعبير النثرى . وانتقل الباحث فيه الى الميادين الجديدة لحركة التأليف فى المنطقة بعـد الحرب الثانية ، وكيف تطور التاريخ العام فى تلك الديار فكان منه تاريخ الأدب ثم حلل الجهود المعاصرة فى هـذا الميدان . وفى القسم الثانى من هذا الفصل نفسـه تناول بداية الدراسة الأدبية بشرقى الجزيرة فى كنف الصحافة ، ثم استقلالها عنها ، وبين محاور ثلاثة دارت حولها الدراسة الأدبية فى المنطقة ، وبين الجهود البارزة فى هذا الميدان محللا لها فكريا ومقارنا لاتجاهاتها بالاتجاهات السائدة فى الثقافة العربية المعاصرة ثم ختم هذا الفصل ببيان الخصائص الفكرية والفنية للنثر عند المجددين من أدباء شرقى الجزيرة .

أما الفصل الثانى من هذا الباب فقد خصص لدراسة (فن المقال بين الشكل والمضمون) وقدم الباحث له بأن دراسة المقال تحدد تطور الحركة الأدبية الحديثة فى المنطقة . ثم فرق فى المقال — من جهة المضامين والأفـكار — بين ثلاثة أضرب ، المقال الاجتماعى ، والمقال الثقافى ، والمقال الأدبى ، فحلل فى كل ضرب تطور الحياة بشرقى الجزيرة فى جوانبها الاجتماعية والفكرية والسياسية والأدبية ، رابطا بين هذا التطور وصداه فى تطور المضامين والأفكار الأدبية ، وانتهى الى النظر فى تطور المقال هناك من الوجهة الفنية وتحديد الخصائص التعبيرية والأسلوبية واللغوية لهذا الشكل الأدبى .

أما الباب الثالث — وهو الأخير — فقـد فرغ فيـه الباحث لدراسة (الفن القصصى فى نثر شرقى الجزيرة) وقسمه الى فصول ثلاثة ، تناول فى كل منها فنا من الفنون النثرية ، وبدأ بالقصة القصيرة فتتبع أولا الخطوات الأولى لنشأة هذا الفن فى أدب المنطقة ، وميز ثلاث مراحل فى تطويره ، كانت المرحلة الأولى بين سنتى ١٩٣٩/١٩٤٥ وفيها كانت القصة القصيرة أقرب الى المقالة الاجتماعية الاصلاحية ، وكانت الثانية مرحلة النقد الاجتماعى بين سنتى ١٩٤٥/١٩٥٨ وقد تم الانتقال فيها الى أشكال ذات مضامين وصور فنيـة ناضجة نسبيا ، وضحت فيهـا القضايا الاجتماعية . ثم كانت المرحلة الثالثة من سنة ١٩٥٨ حتى الآن ، وهى المرحلة التى شهدت التغيرات العميقة فى حياة المنطقة وهى التغيرات المؤثرة .

الشـــــعر

٢٠ ـ الصالح ، محمد عثمان .
الشعر الحديث فى نجد . جامعة كمبردج ـ كلية فتزوليام ، ١٣٨٦ هـ .

موضوع هذه الرسالة هو دراسة للحركة الفكرية فى نجد منذ بداية دعــوة الشيخ محمد بن عبد الوهاب حتى أواخر الخمسينيات من هذا القرن الميلادى ، مع عناية خاصة بالشعر الحديث ، وتنقسم الى اربعة فصول .

يتناول الفصل الأول منهــا تطور دعوة الشيخ محمــد وانتشارها وآثارها التاريخية والفكرية فى هذه البلاد . لقد هيىء هذا الفصل ليكون توطئة لدراســة الشعر الحديث فى نجد ، اذ أنه لابد من العناية بآثار هذه الحركة التى غيرت الحياة فى نجد واثرت تأثيرا بالغا فى تكييف تاريخها السياسى والاجتماعى وانتاجها الفكرى ، لذا فقد عنى هذا الفصل بتتبع النشاط الثقافى والأدبى أيام الدولتين السعوديتين الأولى والثانية رغم قلته وفتوره .

والفصل الثانى دراسة مستوعبة للشعر التقليدى الحديث فى نجد . هــذا الشعر الذى ازدهر بين قلة من الناس نالوا حظا من الثقــافة جعلهم قادرين على كتابته وتذوقه . وقد تعرضت الدراسة لبعض الأسباب التى ساعدت على حصر هذا الشعر الفصيح فى دائرة ضيقة تتكون من علية القوم وكبــارهم والتى جعلت الشعر النبطى يستأثر بالحياة العامة يصورها تصويرا صادقا وينتشر بين مختلف طبقات الناس على صورة تشبه الى حد بعيد ما كان عليه الشعر العربى فى العصر الجاهلى .

يبدأ هذا الفصل بدراســة لسيطرة التقــاليد الشعرية القديمة واثرها على الشعر العربى ، ويعرض بعض المحاولات التى تمت للتخلص من هذه التقاليد منذ العصر العباسى حين كان اغلب المتمردين عليها من الشعراء الذين حاولوا رفض ما لا يتفق منها مع اذواقهم المتحضرة لمــا تتصف به من صفات بدوية بعيدة عن حياتهم وواقعهم حتى القرن التاسع عشر وأوائل القرن العشرين حين بدأ النقاد فى افساد كثير من هذه التقاليد ،وكثر الحديث حول ما يجب أن يكون عليه الشعر الجيد .

يتناول هذا الفصل بعد ذلك دراسة لطبيعة الشعراء النجــديين التقليديين وفطرتهم الشعرية وموقفهم من تراثهم الأدبى القديم ، ويركز على اثبات نظرية فى هذا الصدد وهى أن هؤلاء الشعراء لم يقلدوا الشعر القديم لغرض محاكاته وصنع نمــاذج تسمو الى مستواه ، كما كان شــأن كثير من الشعراء العــرب التقليديين

المحدثين ، ولكن التقليد فى شعرهم للتراث الأدبى القديم كان نتيجة لابد منها واثرا لا يمكن التخلص منه . ولقد قالوا الشعر بالطريقة الوحيدة التى عرفوها فجاء شعرهم محاكيا للقديم فى الشكل والمضمون معا ، ولهذا فقد وجهت العناية لدراسة اثر الشعر القديم فى انتاج هؤلاء من حيث شكل القصيدة واسلوبها واللغة التى استعملها هؤلاء الشعراء والأغراض التقليدية التى طرقوها .

خصص الفصل الثالث من هذه الرسالة للمدرسة الحديثة فى الشعر النجدى ، وبدىء بدراسة للأسلوب الشعرى الحديث ولغة الشعر الجديدة .

هذه المدرسة الحديثه لم تتطور من الشعر التقليدى فى نجد ولكنها بدات وازدهرت خارج هذه البلاد وتاثرت من نواح عدة بمؤثرات غريبة على النجديين ، ولكنهم قبلوا هذه الثقافة الجديدة مع أفكار اجتماعية وسياسية جديدة أخرى وفدت من خارج بلادهم ، ولهذا فقد كان لزاما أن يعنى هذا الفصل بتتبع هذه النهضة الجديدة فى الأدب العربى واهم مقوماتها والمؤثرات التى أثرت فيها واتصال الفكر العربى بالفكر الغربى وخصوصا الانجليزى والفرنسى ، هذا الاتصال الذى ساعد على وجود طبقة من المثقفين العرب الذين يمثلون حركة فكرية جديدة ترفض كثيرا من التقاليد الأدبية والشعرية القديمة ، وكان اصحاب الديوان ورجال الجمعيات الأدبية فى المهاجر الأمريكية وجماعة أبولو وغيرهم فى مقدمتهم .

ازدهر انتاج هؤلاء الأدباء والشعراء الشباب فى البلاد العربية المجاورة ثم صب فى نجد كالسيل الجارف فبهر النجديين الذين انصرفوا الى الاغراق .

٢١ ـ الفيصل ، عبد العزيز بن محمد بن عبد الله .
شعراء بنى قشير فى الجاهلية والاسلام حتى آخر العصر الأموى .
جامعة الأزهر ـ كلية اللغة العربية ، ١٩٧٨
٢ مجلد .

الأدب العربى القديم منهل لا ينضب ، ومنبع لا يجف ، فهو مصدر الثقافة العربية الأصيلة ، والمحافظة على ذلك الأدب والبحث عنه ونشر ما بقى مغمورا فى ثنايا الكتب أو قابعا فى صفحات المخطوطات المنسية انما هو مسئولية فى أعناق الناطقين بالعربية ، ذلك أن الأدب الجاهلى والاسلامى والأموى هو الركيزة التى تعتمد عليها ثقافة العرب على مر العصور .

وايمانا منى بهذا المبدأ العظيم اخترت موضوعى هذا ، شعراء بنى قشير فى الجاهلية والاسلام حتى آخر العصر الأموى ، اخترت هذا الموضوع لما له من الأهمية فى نشر تراثنا العربى ، فالقاء الضوء على قبيلة قشير وجمع شعر هذه القبيلة انما هو خدمة للغة القرآن ، فهذا الشعر قيل فى العصر الجاهلى والاسلامى والأموى ،

وما زال أكثره متواريا عن الأنظار ، فهو يوجد فى مخطوطات نادرة أو كتب طبعت قديما ولم تطبع مرة ثانية . وهنــاك قسم من هــذا الشعر موجود فى كتب الأدب المشهورة .

ولقد تناولت هذا الموضوع من زاويتين :

١ ــ دراسة نسب قبيلة قشير بأصوله وفروعه ، ثم التعرف على بلاد هذه القبيلة ومواطن الخصب فى هــذه البلاد ومن ثم التعرف على الوضــع الاقتصادى للقبيلة ، وكذلك الأوضــاع الاجتماعية من حروب ومنــازعات ومنــافرات ومفاخرات ، وقد درست أيضــا الحالة الثقافية عند هــذه القبيلة ، وذلك بالبحث عن مصادر هذه الثقافة ، ثم دراســة مظاهر هذه الثقافة . وبعــد دراسة الحالة الاجتماعية والثقافية درست شعر بن قشــير فى الجاهلية ثم شعر بن قشير فى الاسلام ، وقد بينت أغراضه وخصائصه المشتركة ، سواء كانت خصائص معنوية أو أسلوبية . وقد درست بعد ذلك شعراء بنى قشير ورتبت هؤلاء حسب كثرة أشعارهم فبدات بيزيد بن الطثرية ثم الصمه بن عبد الله القشيرى ، وبعد أن انتهيت من دراسة الشعراء درست شــاعرات بنى قشير .

٢ ــ جمع الشعر وتحقيقه وشرح غامضه :

لقد اجهدت نفسى فى البحث عن مظان ذلك الشعر لأن العثور على مصادر ذلك الشعر ليس بالأمر اليسير وبعد البحث الشاق والمتواصل استطعت ان اتعرف على مراجع ومصادر ذلك الشعر ، وبعد ان اجتمع لدى ما استطعت الوصول اليه بدأت فى ترتيبه وتحقيقه ، وشرح الفاظه ، وتوضيح الغامض منه وذلك سيتضح فى الخطوات التالية :

١ ــ اثبات القصــيدة او المقطــوعة حسب قافيتها فقــد رتبت القصــائد والمقطوعات حسب حروف المعجم .

٢ ــ جعلت شرح الالفاظ او ما يحتاج الى ايضاح من الشعر يلى الأبيــات مباشرة ، وقد تتبعت الشعر وبينت غامضه وأوضحت ما يلتبس منه ، وشرحت الفاظه بحيث ان القارىء للبيت يستطيع فهمه بسهولة .

٣ ــ لقد اهتميت بتوثيق الشعر وتحقيقه اهتماما عظيما فقد ذكرت المصادر التى نسب فيها الشعر الى الشاعر ، ثم ذكرت المصادر التى ذكر فيها الشعر منسوبا الى شاعر آخر ، ثم ذكرت المصادر التى ذكر فيها الشعر بدون نسبه .

٤ ـ أوضحت الاختلاف فى الروايات فأثبت رواية كل مصدر من المصادر التى ذكرتها فى التحقيق مع ذكر الرواية التى اعتمدت عليها فى اثبات القصيدة او المقطوعة .

فى مقدمة هذا البحث وضحت منهجى الذى سأسير عليه ، وقد وفقنى الله الى ذلك حيث نفذت كل ما عرضته فى تلك المقدمة ، فقد درست قبيلة قشير دراسة وافية حيث القيت الاضواء على هذه القبيلة التى لم يسبق لأى باحث أن يخصها بدراسة وافية ، فقد شملت دراستى لهذه القبيلة : اصل قبيلة قشير ، ثم التعرف على بلاد هذه القبيلة مبينا بلاد التحضر من بلاد البادية ، وقد درست الحالة الاجتماعية لهذه القبيلة دراسة وافية حيث ذكرت أيام هذه القبيلة فى الجاهلية والحروب السائدة بينها وبين جيرانها ، ثم الحروب التى تنشأ بين أفخاذ القبيلة نفسها ، وقد بينت اثر الاسلام فى هذه القبيلة وأن كثيرا من افرادها كان لهم دور بارز فى الفتوحات الاسلامية سواء كان ذلك فى عصر صدر الاسلام أو فى العصر الأموى .

وقد درست ايضا الحالة الاقتصادية لقبيلة قشير ، ثم درست الحالة الثقافية فبينت الفرق بين معارف بنى قشير فى العصر الجاهلى وثقافتهم فى العصر الاسلامى مبينا أثر الاسلام فى هذه الثقافة .

وبالرغم من الجهد الذى قمت به فى هذه الدراسة فاننى اعتبر جمع شعر بنى قشير فى ديوان واحد عملا جديدا ، اذ اننى اجهدت نفسى فى استقصاء المصادر التى تحتوى على ذلك الشعر ، والبحث عن المصدر الواحد يحتاج الى وقت طويل وجهد شاق فكيف اذا كانت المصادر عديدة والعثور عليها ليس بالأمر الهين ؟ واذا كنت قد وضعت امام عينى أن هذا العمل انما هو احياء للتراث العربى وابراز لهذا التراث سهل على كل صعب ، فقد نقبت عن هذا الشعر فى العديد من المخطوطات وقد وفقنى الله الى ان اجمع شعر هذه القبيلة بين دفتى هذا الديوان ، وقد بلغ شعراء بنى قشير وشاعراتهم ستة وسبعين شاعرا وشاعرة ، بعضهم له قصائد ومقطوعات ، والبعض الآخر ليس له الا مقطوعات قليلة . واذا كنت قد سبقت غيرى الى دراسة هذه القبيلة وجمع شعرها واحيائه فاننى قد جعلت التوثيق نصب عينى فى كل دقيقة وجليلة فحتى القضايا الواضحة امام عينى اسعى دائما الى أن تكون مدعومة بالدليل وذلك باعتمادى على المصادر العربية والمراجع الموثوق بها .

أدب انجليزى

شـــعر

٢٢ ــ الخطاب ، عزت عبد المجيد .
دراسة التاريخ النقدى لقصيدة براوننج المعروفة باسم « الخاتم والكتاب » فى الفتــرتين ١٨٦٨ ــ ١٨٨٩ ، ١٩٥١ ــ ١٩٦٨ جامعــة نيومكســيكو ، ١٣٨٩ هـ .

هذه الدراسة هى استعراض للنقد الذى ظهر فى الفترتين ١٨٦٨ ــ ١٨٨٩ م و ١٩٥١ ــ ١٩٦٨ م عن قصيدة « الخاتم والكتاب » . فمنذ أن نشرت هذه القصيدة اجمع النقاد على أنها عمل شعرى من اهم الأعمال الشعرية فى القرن التاسع عشر وكتبوا عنها الكثير ولهذا فان دراسة هذا النقد سيساعد على تفهم التيارات المختلفة ــ السائدة فى انجلترا وأمريكا ــ فى نقد الشعر الانجليزى خلال هاتين الفترتين .

وهذه الدراسة مقسمة الى خمسة ابواب :

البابان ، الأول والثانى ، يستعرضان النقد الذى ظهر ما بين ١٨٦٨ و١٨٨٩ م اى منذ أن نشرت هذه القصيدة حتى وفاة براوننج .

ويستعرض الباب الثالث باختصار نقــد الفترة ١٨٩٠ ــ ١٩٥٠ وهى التى تعتبر فترة انتقال . اما الباب الرابع فيعالج النقد المعاصر فى الفترة ما بين ســنة ١٩٥١ ــ ١٩٦٨

والباب الخامس والأخير يستعرض النتائج التى انتهت اليها هذه الدراسة . وهذه النتائج هى :

اولا : نجد أن منهج نقاد العصر الفكتورى ووسائلهم فى نقد الشعر تختلف عن منهج ووسائل النقاد المعاصرين . ليس هذا فحسب وانما المسائل التى كان يناقشها النقاد الفكتوريون فيما يتعلق بهذه القصيدة تختلف فى النوعية والأهمية عن المسائل التى يناقشها النقاد المعاصرون . فالنقاد الفكتوريون كانوا يهتمون مثلا بالدروس الأخلاقية المستفادة من هذه القصيدة وكذلك بموضوعها فيما اذا كان موضوعا رفيعا او غير ذلك وبمدى صعوبة او سهولة فهم القصيدة . هذه المواضيع وامثالها لا تلقى من النقاد المعاصرين أى اهتمام . فهم يهتمون على سبيل المثال بالصور الشعرية والأنماط الاسطورية الموجودة فى القصيدة وأهمية هذه الأنماط بالنسبة لبنائها .

أدب فارسی

الشعر

٢٣ ــ البدلي ، احمد خالد .
دور الشعر الفارسى فى الدعاية المذهبية من منتصف القرن الخامس الهجرى الى أواخر السابع فى ايران . جامعة طهران ، ١٣٨٦ هـ .

تدور الرسالة حول ما قام به الشعر والشعراء الفرس فى هذه الفترة من دور فى ترويج المذاهب الدينية الاسلامية المختلفة ، فقد كان الشعر فى الماضى يقوم بدور دعائى ، كهذا الذى تقوم به اليوم وسائل الاعلام المختلفة كالصحافة والاذاعة والتلفزيون ، وقد كان مجتمع ايران فى ذلك العهد يموج بمختلف الملل والنحل . فنجد شاعرا فارسيا كالقوامى الرازى يوقف شعره للدفاع عن المذهب الجعفرى « الاثنا عشرى » ويعدد مناقب آل البيت ويهاجم المذاهب الاسلامية التى كانت تقف فى وجه دعاة هذا المذهب كما نرى شاعرا كناصر خسرو القبادياني ، يوقف ديوان شعره البالغ ستين الف بيت من الشعر للدفاع عن المذهب الاسماعيلى بعد ان اصبح حجه جزيرة خراسان من قبل الفاطميين فى مصر . كما نجد شاعرا سنيا كمودود ابن آدم السنائى يدافع عن اهل السنة والجماعة ويتصدى لشعراء المذاهب الأخرى ويعدد فضائل الفرقة الناجية ، ونرى فى هذه الفترة شاعرا كفريد الدين محمد العطار يوقف شعره الصوفى للتعريف بالصوفية والتصوف والدفاع عن هذه النحلة .

وقد قسمت الرسالة الى مقدمة واربعة ابواب ، وادرج تحت كل باب عدد من الفصول التى تتناول جوانب هامة فى كل فصل على حدة .

فالمقدمة تتحدث عن الدور الدعائى الذى قام به الشعر والشعراء فى صدر الاسلام ، فقد كان الشعراء فى عهد النبى صلى الله عليه وسلم وعهود خلفائه الراشدين رضوان الله عليهم ينافحون عن العقيدة الاسلامية ، ويردون اكاذيب واباطيل اعداء الاسلام ويمكنون مفاهيم الرسالة الاسلامية فى قلوب المؤمنين . ثم لما اكمل الله دينه ودخل فيه الناس افواجا وانتشر خارج الجزيرة العربية بدا الشعراء المسلمون يتخذون من الشعر فى لغاتهم وسيلة لهداية الناس الى الدين . وكان شعراء الفرس من أوائل من عرف اهمية هذا الضرب من القول لترويج المبادىء الاسلامية . كما تتحدث المقدمة عن الحياة الاجتماعية والسياسية التى كانت تسود ايران فى الفترة التى تناولتها الرسالة ، ودور الشعر العقائدى فيها ، وموقف الغزنويين ومن اتى بعدهم من السلاجقة والخوارزميين من خلفاء بغداد الذين كانوا حماة الدين

الاسلامى . ولما كان التشيع قد أصبح مذهبا رسميا للدولة الايرانية فى العهد الصفوى فان الرسالة قد عالجت هذا الموضوع باسهاب وان بدا للوهلة الأولى خارج نطاق الفترة التى تناولتها الرسالة ، الا انه لما كانت ايران من اهم مراكز الشيعة والتشيع منذ القديم فقد وجد انه من المستحسن ذكر الدوافع السياسية التى كانت تكمن وراء اتخاذ الصفويين التشيع مذهبا رسميا لهم . فقد كانت ايران من اكثر البلاد الاسلامية استعدادا لقبول المذهب الشيعى .

٢٤ — العوضى ، محمد صديق .
أبو نواس وفارسياته وتأثيره فى الأدب الفارسى . جامعة طهران — كلية الآداب والعلوم الانسانية ، ١٣٨٩ هـ .

« فارسيات » الشاعر الحسن بن هانىء المعروف بأبى نواس عبارة عن الكلمات والجمل الفارسية التى استعملها الشاعر فى شعره ومن ذلك الشطر من البيت كالملمع ، ويوجد هذا النوع فى الدواوين المخطوطة من شعره فقط . ويعتبر شعره هذا وثيقة أدبية لتاريخ الأدب واللغة الفارسية من حيث تطورهما ، كما هو دليل على اجادة الشاعر اللغة الفارسية .

وقد قسمت الرسالة الى ما يأتى :

١ — المقدمة وتشمل فكرة موجزة عن الرسالة وعن اسباب اختيار الموضوع لرسالة الدكتوراه فى الأدب الفارسى .

٢ — شرح الأوضاع السياسية والاجتماعية والدينية والأدبية والفنية فى عصر الشاعر فى العهد الأول للدولة العباسية .

٣ — تاريخ حياة الشاعر ابى نواس : حياته الشخصية والاجتماعية والعلمية والسياسية والدينية ومنزلته كشاعر واديب وعالم فى اللغة والدين ، مع نقد وتحليل لشعره فى الأغراض المختلفة وفى ضوء النقد الأدبى القديم والحديث من الناحية البلاغية واللغوية والنحوية الخ .

٤ — نثر أبى نواس : تحليل اسلوبه وترجمة نثره الى اللغة الفارسية وتبويبه الى اخوانيات وزهد وحكمة والى عتاب ووصف ، حيث يعتبر من النثر الفنى ومن روائع النصوص الأدبية فى الأدب العربى .

٥ — الأبيات التى سميت فى الرسالة « فارسيات ابى نواس » مع تحقيق وتصحيح لها وترجمة العربية منها الى اللغة الفارسية وشرح الكلمات التى هى باللغات البهلوية أى اللغة التى تطورت بعد انتشار الاسلام فى ربوع ايران من الخط

البهلوى الى الخط واللغة المسماة باللغة الفارسية الحديثة المستعملة الى اليوم .

٦ - تأثيره فى الأدب الفارسى - كيفية اطلاع شعراء الفرس على آثار ابى نواس وتأثرهم به لجودة المعانى المبتكرة التى اتى بها فى شعره فى فن الغزل والمديح والزهد والحوار الشعرى الخ . كما يوضح هذا الفصل ايضا شعراء الفرس الذين تأثروا بأبى نواس من شعراء القرن الرابع الهجرى حتى العهد الحاضر كالرودكى والفردوسى وسعدى وحافظ شعراء الدرجة الأولى فى الأدب الفارسى وغيرهم من الشعراء البارزين كالخيام وملك الشعراء بهار ، مع ذكر نماذج من شعر ابى نواس ومن شعراء الفرس حيث تجد فى شعرهم المعانى والأهداف والصور فى المضامين الشعرية التى وردت فى شعر الحسن بن هانىء .

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جغرافيـــا

٢٥ ــ الوهيبى ، عبد الله ناصر .
شمال الحجاز فى كتــابات الجغرافيين العرب ٨٠٠ ــ ١١٥٠ م . جامعــة لندن ــ مدرسة الدراسات الشرقية والافريقية ، ١٣٨٩ هـ .

قسمت هذه الرسالة ثلاثة أقسام : تناول القسم الاول منها ، وهو اضخمها خلاصة لوصف الجغرافيين العرب فى هذه الفترة لعدد من الاماكن فى شمالى الحجاز . ولانه من غير العملى تسجيل كل ما قالوه عن كل مكان فى شمالى الحجاز فقد اختبرت الاماكن التى رئى ان كتاباتهم عنها تمثل مناهجهم فى البحث والاستنتاج ، ورتبت هذه الأماكن ترتيبا ابجديا ، ووضــع تحت كل عنوان ما وجد من حديث عنــه فى مؤلفات هؤلاء الجغرافيين . وهذا القسم بطبيعته جمع للمعلومات لا غير ، الا فى حالات التناقض حيث يجب حينئذ الموازنة بين الأقوال ، او فى حالات الغموض حيث قضت الضرورة بالاستعانة بكثير من المؤلفين جغرافيين او غير جغرافيين قبل هــذه الفترة واثنائها وبعدها . وكمثال على علاج التناقض نرى البحث موسعا عن « بطن نخلة » أو « بستان ابن عامر » ، وكمثال على علاج الغموض نجد البحث موسعا عن « قرى عربية » ، وفى هذين الموضعين بالذات لزم تلخيص النتائج فى ختام الحديث عنهمــا .

أما القسم الثانى فقد خصص كله للحديث عن طرق الحج فى شمالى الحجاز كما وصفه الجغرافيون العرب . وفى هذا القسم لم يستشهد باقوال مؤلفين من غير جغرافيى هذه الفترة الا فى حالات نادرة ، وغالبا ما يكون ذلك عنــد الحديث عن شعائر الحج وادارة قوافل الحجاج . وقد الحقت بهذا القسم مخططــات لتبيان مراحل الطرق الثمانية التى يسلكها الحاج فى هذه المنطقة كما سجلها الجغرافيون العرب فى تلك الفترة ، وفيما يختص بطرق الحــاج العراقى فقد اضيفت اليهــا المسافات بالأميال كما سجلها جغرافيو العرب المهتمون بذكر المسافات .

أما القسم الثــالث والأخير فهو منصب بصفة عامة على استقراء المعلومات المسجلة فى القسمين الأول والثانى والوصول الى بعض النتائج التى ساعد عليهــا هذا الاستقراء ، وفى هــذا القسم بحثت المصادر والاقتباســات ، والتحريفات ،

والسرقات ، ومحاولة ابداء الراى فى قضايا نسبة الكتاب الى اكثر من مؤلف . كذلك تعرض هذا القسم لميزات الجغرافيين انفسهم ، وللشعر الجغرافى ، ولأسباب نشوء القرى والمدن فى شمال الحجاز واضمحلالها وأخيرا الحديث عن أعراض مكة والمدينة .

اما المدينتان المقدستان فلم تبذل اية محاولة لادخالهما فى هذا البحث لأن كلا منهما تحتاج الى مجلدات .

وشمال الحجاز تعنى فى هذا البحث كل بقعة شمالى مكة وجنوبى تيماء وتبوك وايلة مما تمتد اليه تهامة وجبال الحجاز .

التـــراجم

٢٦ ـ العثيمين ، عبد الله صالح .
محمد بن عبد الوهاب ـ الرجل واعماله . جامعة ادنبرا ، ١٣٩٢ هـ .

تمتد جذور الدولة السعودية الفكرية الى تلك الدعوة التى نادى بها الشيخ محمد بن عبد الوهاب حوالى منتصف القرن الثانى عشر الهجرى . وكان ارتباط معاصريه من آل سعود بدعوته عاملا من عوامل نجاحها كما كان سببا فى توسيع نفوذهم . على أن المبادىء التى نادى بها ذلك الشيخ كثيرا ما أسيء فهمها نتيجة عوامل مختلفة . وفهم تلك المبادىء فهما صحيحا يجب أن يعتمد الى درجة كبيرة على دراستها من مصادرها الأصلية . وهذه الرسالة دراسة لشخصية الشيخ وتحليل لانتاجه الفكرى كما أنها مناقشة للمبادىء التى نادى بها خاصة تلك النقاط التى قام فيها الجدل بينه وبين خصومه .

والرسالة مقسمة الى خمسة فصول تسبقها مقدمة قصيرة ودراسة للمصادر وتتلوها خاتمة توضح ما توصل اليه نتيجة للبحث والفصل الأول عرض تاريخى عن وسط جزيرة العرب قبل ظهور الشيخ محمد ودراسة مفصلة للأوضاع السياسية والاجتماعية والدينية التى كانت سائدة فى تلك المنطقة لما لكل ذلك من تاثير على تكوين فكر الشيخ وحركته .

أما الفصل الثانى فيعالج حياة الشيخ من حيث أسرته ونشأته واسفاره فى طلب العلم كما يتناول بداية مناداته بافكاره وتطبيقه لها وردود الفعل الأول التى ترتبت على ذلك .

واما الفصل الثالث فانه دراسة لحركة الشيخ بعد تحالفه مع آل سعود وتوضيح لدوره فى توجيه تلك الدولة الجديدة التى نشأت نتيجة ذلك التحالف . والفصل الرابع من الرسالة وصف وتحليل للكتب والرسائل التى كتبها الشيخ . أما الفصل الخامس والأخير فانه مناقشة للنقاط الرئيسية من مبادىء الشيخ ، وهى النقاط التى دار الجدل والنقاش حولها بينه وبين خصومه وبين مؤيديه ومعارضيه .

وترى نتيجة البحث كيف كان الشيخ الرجل المهيأ للقيام بمثل ما قام به من اصلاح وكيف كانت المنطقة التى ظهر فيها منطقة مناسبة لمثل دعوته .

تاريــخ

٢٧ ـ الأنصارى ، عبد الرحمن الطيب .
دراسات نقدية ومقـارنة لأسماء الأعلام اللحيانية . جامعـة ليدز ـ قسم الدراسات السامية ، ١٣٨٦ هـ .

بالاضـافة الى التقـدمة التى تعطى صورة عامة عن اللحيـانيين : اماكن سكناهم ، وصف آثارهم ومقابرهم ، تاريخهم وكذلك تاريخ مسالك جنوب الجزيرة وكل المصادر التى عالجت جوانب متعددة عن دولة لحيان واللحيانيين ، فان المؤلف قد قسم ما لديه من مادة الى جزءين حيث حاول فى الفصل الأول من الجزء الأول ان يقسم النقوش اللحيانيـة الى مجموعات اما حسب أماكن وجودها أو حسب القرى التى وجدت فيها مثل العلا والحجر وذلك لكى يوضح كثافة النقوش فى كل مجموعة ولتساعد هذه التقسيمات فى المقارنات بالنسبة لأماكن الأسماء اللحيانية خاصة والسامية عامة ، ولكى يعطى القارىء صورة واضحة فقد صحب دراسـة المجموعات بتاريخ النقوش وتطور اشكالها حسب الجدول الذى وضعه كاسكل والذى اتخذه كمرشد له .

ولعدم اتفاقه مع كاسكل فى تاريخه لبعض النقوش فقد اجتهد فى تبرير وجهة نظره فى بعض النفـوش فى الصفحات التى تلى دراسته لمكان النقوش اللحيـانية وزمانهـا .

ان هناك مظاهر دينية معينة قد تلقى ضوءا على أسماء الأعلام وهذه المظاهر امدت المؤلف بمادة ذات علاقة بالدفن والأحوال الدينية وامدته أيضا بما وراء بعض النقوش ، وقد اتبع ذلك بدراسة مفصلة للمعبودات اللحيانية (مع مراعاة المعبودات التى استعملت كجزء من أسماء الأعلام) . وفى الفصل الثانى قدم المؤلف قائمة مفصلة للأسماء البسيطة فى بنائها وشكلها حسب الأوزان العربية . وهذا الاجراء كشف له ان الأسماء العربية تمتد فى جذورها الى حوالى القرن السادس ق. م ان لم يكن ابعد من ذلك ، يتلو ذلك قائمة بأسماء اعلام استخدمت فيها اسماء حيوانات واشجار واسماء اجنبية . وفى الفصل الثالث قسم المؤلف الأسماء المركبة الى أسماء مركبة عقيدية واسماء مركبة غير عقيدية حسب البناء النحوى فى كل منهما ، وقد لوحظت فيها القراءات كما فسرها كل من جوسين وسافيناك وكاسـكل وغيرهم ، وعندما يكون هناك شك فى القراءة تعطى الأفضلية للقراءة التى تتفق والشكل العربى .

ويمكن اعتبار الجزء الثانى من الدراسة اهم جزء ، حيث قارن المؤلف فيـه الأسماء اللحيانية بأسماء سامية من مناطق مختلفة ليكتشف الى أى مجموعة تنتمى

مجموعة الأسماء اللحيانية وليلحظ المظاهر والأشكال التى تشترك فيها أسماء الأمة اللحيانية مع أسماء الأمم السامية الأخرى ، والأسماء المقارن بها تتكون من مواد من مصر وفلسطين واوجريت والالاخ وتدمر ومارى وفينيقيا والمستعمرات الفينيقية الى جانب شمالى ووسط وجنوبى الجزيرة العربية . وقد كان من الممكن ترتيب هذه المادة حسب العلاقات التاريخية الجغرافية بلحيان منفصلة كلا على حدة ولكن التجربة اظهرت أن دمج كلا الترتيبين التاريخى والجغرافى اكثر سدادا . وبناء على ذلك فقد قسمت المادة المقارنة الى أربعة اقسام :

الأول : يشتمل على اسماء من سوريا وفلسطين ووادى الرافدين ومصر فى الألف الثانى ق. م.

الثانى : يشتمل على اسماء من سوريا وفينيقيا وفلسطين ووادى الرافدين وشمالى الجزيرة العربية ومصر فى الألف الأول ق. م.

الثالث : يشتمل على أسماء من شمال غربى الجزيرة العربية والتى يعود تاريخ بعضها الى الألف الأول ق. م والبعض الآخر الى الألف الأول الميلادى والتى تشتمل أيضا على أسماء استمرت من الألف الثانى واول ق. م. **الى** الفترة العربية .

الرابع : ويتكون من أسماء من جنوبى الجزيرة العربية وهى تعود الى الألف الأول ق. م.

وفى مقارنته بين اسماء الاعلام اللحيانية واسماء الأعلام السامية الأخرى اتبع المؤلف دراسة الشكل والمكان والتاريخ والمستوى الاجتماعى (بقدر ما امكن) لكل اسم واتبع ذلك بالنتائج التى توصل اليها فى كل مقارنة .

ولأهمية ودلالة شكل الاسم فقد قسم الى اربعة اشكال :

الشكل الأول : حيث يكون التماثل كاملا بين اسم العلم اللحيانى واسم العلم السامى .

الشكل الثانى : حيث يكون الاتفاق كاملا فى اصل الاسم ولكنه يختلف فى البناء .

الشكل الثالث : حيث يكون اما أن الجزء الأول فى الاسم السامى المقارن وفى الاسم اللحيانى المركب (فى حالة ما اذا كان الاسم فى واحد منهما اسما بسيطا) متماثل أو أن الجزء الأول فى الاسم السامى المقارن مماثل للجزء الأول فى الاسم اللحيانى .

الشكل الرابع : اما ان يكون الجزء الثانى فى الاسم السامى المقارن وفى الاسم اللحيانى المركب (فى حالة ما اذا كان الاسم فى واحد منهما اسما بسيطا) متماثلا أو ان الجزء الثانى فى الاسم السامى المقارن مماثل للجزء الثانى فى الاسم اللحيانى .

اما بالنسبة للمستوى الاجتماعى فقد ميز المؤلف بين مستويين :

الأول : هو مستوى الملوك والأشراف والنبلاء حيث نجد النقش او الوثيقة التى تشتمل على اسم الملك او الشريف أو النبيل تشير الى حوادث دينية أو اجتماعية او تاريخية تتصل بصاحب الاسم .

الثانى : مستوى العامة حيث يكون النقش عبارة عن خربشة على الصخر وحيث لا تشير الوثيقة الى اى مستوى اجتماعى محدد لصاحب الاسم .

وحيث ان دراسة الشكل فى كل مقارنة هى العامل المهم فانه انهى مقارناته بمسح عام لكل اشكال الاسماء السامية التى قارنها بالأسماء اللحيانية والتى اعطت نتائج قيمة منها ان العلاقة بين اللحيانيين والأمم السامية الغربية تعود الى حوالى الألف الثانى ق. م. مما ادى الى الاعتقاد بأن اللحيانيين كانوا عبارة عن قبيلة عربية تاثرت تأثرا كبيرا بالتأثيرات الأجنبية مما لون حياتهم وديانتهم بصور اجنبية ولكنهم فى نفس الوقت استطاعوا ان يحافظوا على شخصية لغتهم وطريقة تفكيرهم كما انعكست على اسماء اعلامهم التى امكن التصرف فيها من خلال تشابهها الكبير بالأوزان العربية ، وبعكس التأثير السامى الغربى والتأثيرات الأجنبية الأخرى فان تأثير دول جنوب الجزيرة العربية كان بسيطا رغم انهم كانوا جد متطورين وفى مركز متحضر ولم يظهر تأثيرهم الا فى استخدام اللحيانيين للحروف الجنوبية التى طوروها بحيث اتخذت طابعا أصبح يعرف حاليا باسمهم .

٢٨ — الشعفى ، محمد سعيد منشط .
الدولة السعودية الأولى مع التنويه على وجه الخصوص بانظمتها الادارية والعسكرية والاقتصادية فى ضوء المصادر غير المطبوعة العربية منها والادارية .
جامعة ليدز — قسم الدراسات السامية ، ١٣٨٧ هـ .

يتضح من عنوان هذه الأطروحة انها تعالج النواحى الادارية والاقتصادية والعسكرية للدولة السعودية الأولى ١١٥٨ — ١٢٣٣ هـ . والغرض من هذه الدراسة هو ملء الفراغ الذى تركه الباحثون لفترة تاريخية مشرقة من تاريخ بلادنا . ذلك لأن كل الدراسات السابقة كرست جميعها للتاريخ السياسى متجاهلة الخوض فى مواضيع معقدة كهذه التى اقدم عليها المؤلف .. ولعل السبب فى عزوف الكتاب عن الكتابة فى مواضيع كهذه يعود الى ندرة المعلومات الأولية فضلا عن صعوبتها . ولقد بذل المؤلف جهدا كبيرا فى البحث والتنقيب فى جمع مصادره من اماكن متفرقة .

وقد قسم البحث على النحو التالى :

أولا ــ الشئون الداخلية ويتضمن ما يلى :

(أ) مقدمة وتشمل :

١ ــ المصادر المهمة .

٢ ــ نبذة عن علاقة آل سعود بآل الشيخ .

٣ ــ نبذة عن علاقة القبائل التى خضعت للدولة السعودية .

(ب) الادارة التى طبقت فى الدولة السعودية وقد قسمت الى ما يلى :

١ ــ الادارة المركزية .

٢ ــ الادارة المحلية .

(جـ) الجيش السعودى وتنظيمه من حيث :

١ ــ أسس السياسة الحربية .

٢ ــ القوات والحرب .

٣ ــ الأسلحة والعتاد .

٤ ــ الخطط الحربية .

٥ ــ نمو الجيش .

٢٩ ــ عنقاوى ، عبد الله عقيل .
تنظيمات الحج ودوره فى عصر المماليك . كمبردج ــ كنجز كوليج ، ١٣٨٨ هـ .

لقد لعب الحج وما زال يلعب دورا هاما فى تاريخ الشعوب الاسلامية . ومع أن الحج قد احتل مكانته المرموقة منذ قبيل الاسلام حين انتشر بين القبائل الوثنية فأصبح مرتبطا بحياتهم الاقتصادية والاجتماعية والثقافية فان اهميته قد برزت بروزا واضحا بظهور الاسلام فظهر من أدران الوثنية وتقاليدها المقيتة واعيد الى حظيرة الحنيفية واصبح ركنا من أركان الاسلام .

والى جانب ذلك ، أخذ الحج يكتسب ملامح أخرى ، فبانتشار الاسلام الى سائر انحاء شبه الجزيرة العربية وبانتقاله الى الشام والعراق ومصر وغيرها من المناطق كان لابد لشعوب هذه البلاد أن تقوم بتأدية هذه الفريضة . ومن ثم اصبح

لزاما على حكومات هذه المناطق أن تمد يد العون لشعوبها حتى تتمكن من القيام بأداء هذا الواجب ، فبرزت الى الوجود ظاهرة جديدة قوامها مجموعة من القوافل التى أخذت تغادر سنويا بعض العواصم فى طريقها الى مكة ليقوم أفرادها بزيارة البيت الحرام وعرفات ومزدلفة ومنى وتأدية ما عليهم من فروض ونوافل هى أركان الحج وواجباته وسننه .

على أن هذه القوافل التى سيرت اصلا لغرض اراحة الحجيج وأمنهم لم تلبث ان استخدمت الى جانب ذلك لتحقيق اغراض أخرى . ففى عصر الراشدين وفى أيام الأمويين وخلال القرنين الأولين من العصر العباسى كان الخليفة فى المدينة ، وفى دمشق ، وفى بغداد على التوالى يتمتع بسلطة مطلقة روحية ودنيوية على الأراضى المقدسة (مكة والمدينة) ، فكانت قافلة الحجيج التى تخرج من عاصمة الخلافة لا تؤدى غير دورها الأصلى وهو تسهيل وصول الحجاج الى مكة وعودتهم منها . على أنه منذ أواخر القرن الثالث الهجرى وحينما أخذت قبضة الخليفة تضعف وبدأ يفقد السيطرة على الأراضى المقدسة وعلى غيرها من الأماكن البعيدة عن عاصمة الخلافة ظهرت سياسة جديدة تبناها الخلفاء فى بعض الأحوال وهى محاولة السيطرة على المدينتين المقدستين عن طريق قافلة الحج ، وبشكل أدق عن طريق أمير الحاج الذى يتولى قيادة القافلة وما يرافقها من حرس وجنود كانوا يوفدون لحراستها .

وحينما اعتلى المماليك عرش مصر (٦٤٨ هـ - ١٢٥٠ م) قاموا بنفس الدور ، فاعادوا تنظيم قوافل الحج من مصر والشام كما سعوا أيضا الى السيطرة على المدينتين المقدستين عن طريق هذه القوافل . غير أن أهمية عصر المماليك بالنسبة للحج ترجع فى الدرجة الأولى الى ما ادخلوا عليها من عادات وتقاليد أخذت تصاحب خروج قوافل الحجيج من مصر والشام وسيرها الى الأراضى المقدسة وعودتها منها ، والى ما قاموا به من تطوير فى نظام هذه القوافل ، والى ما بذلوا من عناية فى اصلاح الطرق المؤدية الى مكة ومعالجة المشاكل التى كانت تنجم عن مهاجمة بعض القبائل العربية - التى امتدت منازلها على طريق الحج من مصر والشام الى مكة المكرمة - لقوافل الحجيج .

هذه المظاهر فى تنظيمات الحج تمثل الخطوط الرئيسية التى عولجت فى الرسالة . وقد قسمت الرسالة الى مقدمة وستة فصول هى كما يأتى :

المقدمة : تتحدث عن تنظيمات الحج من بداية القرن الأول الهجرى حتى منتصف القرن السابع وقد قسمت هذه الفترة على النحو التالى :

١ - عصر الخلفاء الراشدين والأمويين .

٢ - عصر الخلافة العباسية .

٣ ــ عصر الفاطميين .

٤ ــ عصر الأيوبيين .

الفصل الأول : ويتحدث عن علاقة المماليك بالحجاز وهى على مرحلتين الأولى تمثل بداية السيطرة المملوكية على مكة والمدينة ، والثانية احتلالهم للحجاز .

الفصل الثانى : اهمية القاهرة ودمشق كمراكز لقوافل الحج .

الفصل الثالث : التنظيمات الادارية لقافلتى الحاج المصرى والشامى (امير الحج ــ امير الركب الأول ــ بقية موظفى قافلتى الحج المصرى والشامى) .

الفصل الرابع : المحمل فى قافلتى الحج المصرى والشامى (أصل المحمل ــ دور المحمل ــ الاحتفالات السنوية التى كانت تصاحب خروج المحمل من القاهرة ودمشق) .

الفصل الخامس : التنظيمات المالية للحج (مصروفات القوافل ــ المصروفات على طرق الحج ــ المصروفات على الأراضى المقدسة) .

الفصل السادس : طرق الحاج المصرى والشامى ونظام سير القوافل .

وقد ختم كل فصل من فصول الرسالة باهم النتائج التى امكن التوصل اليها .

٣٠ ــ العمرو ، صالح محمد .
الحجاز تحت الحكم العثمانى ١٨٦٩ ــ ١٩١٤ الوالى العثمانى ، شريف مكة وتطور النفوذ البريطانى فى المنطقة . جامعة ليدز ، ١٣٩٤ هـ .

هذا البحث عبارة عن محاولة مفصلة لدراسة النواحى الادارية والسياسية والاقتصادية والعسكرية لولاية الحجاز فى العهد التركى ما بين ١٨٦٩ ــ ١٩١٤ وكذلك دراسة لحالة الولاة العثمانيين واشراف مكة وعلاقتهم ببعض وعلاقة كل منهم بالقنصلية البريطانية فى جدة فى نفس تلك الفترة .

على الرغم من أن منطقة الحجاز كانت ولاية عثمانية الا انها تختلف عن غيرها من الولايات العثمانية لوجود سلطة اخرى غير سلطة الأتراك وهى سلطة الاشراف فكان وضعها فى الحقيقة هو عبارة عن دولة فى داخل دولة اذ أن كلا من الشريف والوالى له جهازه الادارى الخاص وسجونه ومحاكمه وجيشه وممثليه فى المدن

الحجازية الأخرى .. الخ . ولم يكن هذا الوضع قبل القرن التاسع عشر ليثير أى مشاكل لأن الأتراك لم يكونوا ليهتموا كثيرا للتفاصيل فى الادارة فكثير من الولايات وخاصة فى الحجاز الا أن الوضع تغير بعد استيلاء محمد على باشا على الحجاز فى الفترة ١٨١١ - ١٨٤٠ ذلك أن السلاطين بعد تلك الفترة بدأوا يحاولون النهوض بالامبراطورية العثمانية لتقف فى وجه الأطماع الداخلية والخارجية وذلك عن طريق ادخال الاصلاحات على جميع أجهزة الدولة سواء فى مركز الدولة أو فى الولايات . وقد زاد نشاطهم بالنسبة لغرب الجزيرة العربية بعد فتح قناة السويس عام ١٨٦٩ حيث حاولوا تنظيم الجهاز الادارى فى الحجاز وجعل الادارة أكثر مركزية من ذى قبل وكانت النتيجة هى أستياء اشراف مكة وبالتالى تدهور علاقاتهم مع الولاة الأتراك .

ولم يكن امر النزاع ليقتصر على الولاة والأشراف فحسب ذلك أن القناصل البريطانيين فى جدة لم يقفوا موقف المتفرج مما يجرى حولهم فى تلك المنطقة التى يعرفون ان لهم فيها مصالح خاصة تلك المصالح التى تنبع من كونهم يحتلون الهند وبعد ذلك مصر فالبحر الأحمر بالنسبة لهم يعتبر نقطة وصل بين ممتلكاتهم ويهمهم امر المناطق التى تطل عليه . هذا من ناحية ومن ناحيــة أخرى وجود أقليات من رعاياهم مقيمين فى مدن الحجاز يهمهم امرهم ومصــالحهم بالاضــافة الى الناحية التجارية وكونهم يحتلون اكبر بلد اسلامى وهى الهند مما يجعل لهم بعض النفوذ او حق الاشراف على الأقل على الحجاج القادمين من هناك . ولم يكن أمر تدخل القناصل فى شئون الحجاز ليمر دائما بسلام وبدون ثمن بل ان اثنين من قناصلهم لاقوا حتفهم فى فترتين متقاربتين على يد السكان المحليين .

ان أهم ما تتميز به هذه الدراسة كونها اعتمدت على الوثائق والمصادر الأولية وخاصة من الأرشيفات البريطانية والتركية والمصرية بالاضافة الى بعض الوثائق الخاصة . وقد قسم هذا البحث الى أربعة فصول :

الأول : وصف مفصل لمنطقة الحجاز والحياة الاجتماعية لسكانه بالاضافة الى اعطاء فكرة عن الوضع السياسى فى المنطقة فى الفترة التى سبقت فترة البحث .

الثانى : دراسة لحركة التنظيمات والاصلاحات العثمانية : نجاحها او فشلها واسباب ذلك . بالاضافة الي اعطاء فكرة عن الوضع الاقتصادي والعســكرى فى الولاية .

الثالث : يعالج بالتفصيل علاقات الولاة بالاشراف والعوامل التى تؤثر عليها وسلطات كل منهم . كذلك يعطى فكرة عن علاقات ولاية الحجاز بالمناطق المجاورة لهـا .

الرابع : يعالج المصالح البريطانية وعلاقات القنصلية البريطانية فى جدة بكل من الولاة والاشراف وكيفية عمل القنصلية . هذا بالاضافة الى دراسة مفصلة عن مسألة شمال الحجاز وسيناء التى ابقى المصريون سلطتهم عليها لعدة سنين بعـد جلائهم عن الجزيرة العربية عام ١٨٤٠

٣١ - الخويطر ، عبد العزيز ،
دراسة نقدية وترجمة لمصدر عربى لم يكن معروفا من قبل يتناول سـيرة الملك الظاهر بيبرس مع مقدمة وتعليقات ، جامعة لندن - مدرسة الدراسات الشرقية والافريقية ، ١٣٨٠ هـ ،
٣ جزء ،

كانت مصر فى يد الأمراء الأيوبيين ، وكان من بين من حكمها منهم الملك الصالح أيوب الذي توفى فى عام ١٢٤٩ م ، فاستولى مماليكه على السلطة ، ولم يكن بيبرس أول مملوك منهم يمسك بالسلطة ، الا أن ما قام به من جهود لتكوين دولة المماليك تجعله يعتبر المؤسس الحقيقى لها . ومع اهمية فترة حكمه الا أن ما كتب عنه فى المـاضى كان طفيفا ، ولعل بعض أسباب ذلك تعود الى عدم وجود مادة بحث متكاملة عنه ، وحتى وقت قريب لم يكن معروفا عن حياته الا جزء من سيرة الملك الظـاهر بيبرس كتبها محيى الدين بن عبد الظاهر . اما الآن فقد عثر على هذه السيرة كاملة تقريبا . وبمناسبة العثور على هذه المخطوطة الثمينة فقد اجريت هـذه الدراسة التحليلية عليها مع ترجمة لهذه السيرة وتعليقات ومقدمة .

وهذه الدراسة مقسمة الى ما يلى :

الجزء الأول : مقدمة وفيها محاولة لاظهار اهم المعالم لحكم بيبرس ، وقد اشتملت لهذا على ما يلى :

الفصل الأول :

(أ) دراسة المصادر المعاصرة لعهد السيرة .

(ب) النقوش والنقود .

(جـ) مصادر القرنين الرابع عشر والخامس عشر .

الفصل الثانى :

(أ) دراسة لحيـاة بيبرس الأولى ، ثم أيام استرقاقه وأيام خدمته للملك الصالح أيوب .

(ب) تتبع جهود بيبرس للوصول الى السلطة حتى نالها .

(جـ) سلطته ، سياسته الداخلية والخارجية .

الجزء الثانى : الترجمة الانجليزية لمخطوطة حياة بيبرس « الروض الزاهر فى سيرة الملك الظاهر » .

الجزء الثالث : النص العربى لمخطوطة هذه السيرة .



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INDEXES

ter «The court of the King». The fourth chapter constitutes an introduction to the historical section of the MS.

In editing this work he has tried to preserve the original reading of the text wherever possible. When there is strong evidence of error the text has been emended and the original reading recorded in a footnote.

As there are a number of orthographical phenomene which follow a single pattern throughout the work, and which are too frequent to be mentioned in the footnotes, he has dealt with these in a separate section. In haidling these he has followed the usage of modern Arabic orthography.

There are also a number of interlinear and marginal notes in the text which will be referred to as Int., Mar., respectively. The figures which appear in the margin of this edition refer to the folio numbers of the MS.

He has provided an index of the names of persons mentioned in the text, of place names, Qur'anic verses, Muhammadan traditions, books mentioned by the author, and list of the contents of the text. These indices will be attached to the introduction in vol. I.

The text consists of two main parts : the theory of the caliphate and a history of the rulers of Mecca during the period 597/1009 A.H— 1200/1600 A.D. Particular inportance is given to the later part because of its contribution to the history of Mecca, which has suffered neglect at the hands of Muslim historians. The fact that this history of Mecca was written by a native of Mecc awho also enjoyed a high position in the social and religious life of Mecca adds to its value and credibility.

The second part of the work comprises chapters V-IX, all dealing with description of the field work and the identification of the sites, methods of the construction of the body of the road and the facilities provided along the road. Chapter VII is dedicated mainly to studying in detail the water tanks along Darb Zubaydah and an extensive comparative study with similar water installations in other areas outside Saudi Arabia. Chapter VIII is devoted to the study of two 'Abbasid milestones and newly discovered kufic inscriptions near the Pilgrim Road. Finally, chapter IX, which deals with small finds (pottery and glass fragments, and coins).

For convenience, the majority of maps, site maps, and photographic plates, are all included in volume II.

As a final remark, he would like to observe that the study of Darb Zubaydah is far from complete ; and he hopes that this subject may be interest to scholars from Saudi Arabia and elsewhere ; additional reasearch in this field should help to provide a clearer picture of the technique of road building along the Pilgrim Routes, not only in the special case of Darb Zubaydah, but also in general.

268 — **Urainan, Hamad Mohammed,**
An Edition of Nasha' at al-Sulafah bi munsha' at al-akilapah by Abd al Qadir al-Tabari. University of St Andrews - Department of Arabic Studies, 1972.
122 p. + 164 (Text in Arabic).

The present edition of the work نشأة السلافة is based on only one MS. Although they have been told that there is another copy of it in Jedda, Saudi Arabia, all attempts to obtain a copy of it have proved unsuccessful.

The work is presented in 2 volumes : Vol. I, contains the introduction and the indices for the text, Vol. II, contains the text.

His introduction to this work consists of four chapters the first of which deals with describing the MS, the copyist, and the orthography. The second chapter deals with the author his name, his life, his intellectual background and his other works. The third chapter is a critical study of the author's theory of the caliphate and his chap-

peoples of Arabia for general background. Chapter Three contains the theoretical discussion of the concepts of charisma and nation-building. In this particular chapter a deliberate attempt is made to develop a theoretical framework for the entire study. In the course of building such a system, efforts would be made to borrow as much as possible from the works of Max Weber, Karl Deutsch, and other theorists whose models are related to the present work.

Chapter Four deals with the rise of the Saudi family in the nineteenth century. The materials provided in this chapter constitute the background against which the analysis is attempted. The fifth chapter examines the role of Ibn Saud in the political integration of the Arabian Peninsula.

Chapter Six is a comparative analytical approach to the study of charisma. This portion of the dissertation relates the findings on Saudi Arabia to the general findings of scholars studying areas of the world. The last part of the paper constitutes the conclusion ; it sums up the import of the study, giving a general findings and propositions.

267 — **Al-Rashid, Saad Abdul Aziz.**
A critical study of the Pilgrim road between Kufa & Mecca (Darb Zubaydah) with the aid of fieldwork. The University of Leeds, 1977.
2 vols.

The thesis is divided into nine chapters. Chapters I-IV, forming the first part of the thesis, cover introductory matter, e.g., to the early pilgrim road in Arabia, including Darb Zubaydah before the «Abbasid period, and road works during the time of Umayyad caliphs. Chapter II is the main section which is intended to offer a coherent historical background for the establishment of the Pilgrim Road by the 'Abbasid caliphs, Zubaydah, and other donors. Chapter III is dedicated to the study of the decline of the road at the hands of tribes and the Qarmatians, etc. Chapter IV deals with the Pilgrim Road after the fall of Baghdad and the Zubaydah road as reported on in the works of European travellers.

266 — Kashmeeri, Bakor Omar
Ibn Saud : the Arabian Nation - Builder. Howard University, 1973.
vii, 279 p.

This is a descriptive and analytical study of the role of Abdul Aziz ben Abdul Rahman as-Saud, known to the West as Ibn Saud, as a nation - builder in Saudi Arabia. The main objectives of the study are study are two-fold. The first purpose is to provide a descriptive and analytical perspective on the nation building efforts of the Saudi leader. At this level of analysis, we operate under the assumption that the Saudi ruler was one of those historical figures whom Max Weber would describe as charismatic. Briefly stated, this first purpose of the work involves an attempt to demonstrate that Ibn Saud's success in consolidating the fragmented Arabian Peninsula into a single political entity stemmed from his charismatic qualities. The other objective of this dissertation is related to the need for more and more case studies on individual nation-builders. By tying the concepts of charismatic leadership to other related concepts in the theoretical realm of nation-building, this writer hopes to provide some answers to the question of charismatic leadership in human society.

This study, it is hoped, would meet the needs of scholars who have for long been denied the opportunity to get glimpses into the secrets of Arabian society. More importantly, this endeavour is expected to provide empirical data which would help other students of the subject to make proper and meaningful comparison between different political systems.

This research is based on several sources which are explained in a subsequent section. However, the primary source is the English and Arabic literature on the life and work of Ibn Saud. These source materials give adequate background information about the Arab leader. The Arabic sources are in many cases long and detailed ; however, their significance is obviously great, for they most certainly enable the interested reader to get a good idea about the life of the Saudi chief.

The complete work is composed of the introduction and six other charpetrs. The introduction is intended to give a general overview of the dissertation. Chapter Two is a survey of the land and

in the Qasim and Hijaz regions. He also strove to cultivate friendly relations with his Arab neighbors. In 1926, by virtue of the Mecca Protectorate Agreement, the amirate of Asir surrendered its internal and external sovereignty to ibn-Saud.

In its regional policy, Saudi Arabia pledged solidarity with the Arab nations, supporting both diplomatically and materially the Arab nationalist movements, the Arab League, and the Arab position regarding Palestine The development of the entire Saudi Pan-Islamic policy, in fact, was clearly influenced by the emergence of the Saudi state from the religio-political alliance of 1747, ibn-Saud's position as de facto ruler of Hijaz since 1926, and Saudi possession of the two Holy Cities. The religious factor pervaded the political, judicial, economic and intellectual life of the traditional Saudi society.

Saudi Arabia followed a neutralist policy during world War II. It maintained its independent stance until an Allied victory appeared imminent, when it declared war on the Axis and joined the United Nations. In the 1950's, the neo-Saudi Pan-Islamic policy was solidified, reaching its peak in 1960 because of the political development in the Arab East in general and Arabia's politics in particular. In 1962, these factors led to the establishment of the Muslim World League with its headquarters at Mecca.

As an emergine nation, Saudi Arabia has repeatedly declared its adherence to the United Nations Charter and cooperated with the Muslim, Arab, Afro-Asian and Latin American groups on the social, political, economic and technical problems which confront underdeveloped countries. It has followed a neutralist policy in East-West issues as indicated by its voting record in the United Nations.

Saudi Arabia has repeatedly declared its adherence to the principles of positive neutralism in a nonaligned policy within the international system. Saudi Arabia has maintained friendly relations with the West by cooperating with it in political, economic, and technical fields, while rejecting Western alliances and pacts which conflict with the principles of the Arab League Charter and its own neutralism. The maintenance of national security is a further reason for its position. Because of ideological conflicts it has maintained no formal diplomatic relations with the Soviet Union since the 1930's.

they spent and the types of goods they purchased. The data was processed by computer and the results tabulated.

By using the estimates of pilgrim numbers and the results of the survey it was possible to forecast the major problems facing the authorities over the next twenty years and to show how these could be overcome by extending the local road system, by improving circulation and by replanning the camping areas and the related services.

The particular problems facing Mecca are discussed and recent planning policy is critically examined. A new policy is given which would greatly enhance the area around the Haram and, at the same time, allow considerably more pilgrims to perform their religious duties in comfort. The thesis concludes by outlining a method of controlling the numbers of foreign pilgrims logically and fairly provided all the governments of Muslim countries cooperate fully in implementing the proposals.

265 — **Al-Jazairi, Mohamed Zayyen**
Saudi Arabia : a diplomatic history 1924 - 1964. Utah University, 1971.

This study explores three facts of Saudi Arabia's diplomatic history : (1) the impact of Islam on the modern history of Saudi Arabia; (2) the role of ibn-Saud (Abdul Aziz ibn-Abdul Rahman al-Faisal al-Saud, ruler of Saudi Arabia, 1902-53) in the development of Saudi diplomacy ; and (3) Saudi Arabia's diplomatic relations with Western Europe, the Soviet Union, the Middle East and the United States. A detailed account is given of Saudi diplomatic history from 1924 to 1964. An historical sketch of the establishment and rise of the Saudi Dynasty is included.

The religio-political alliance of 1747 between the Saudi House in Central Arabia and the religious reformer Muhammad ibn-Abdul-Wahhab led to the establishment of the Saudi Dynasty as a leading power in Arabia. The first Saudi State lasted from 1747 to 1818. The Second State continued until 1892 and collapsed because of a power Struggle within the Saudi Dynasty. The founder of modern Saudi Arabia, ibn-Saud (1902 53), resfored its remnants under a centralized government, expelling the Turks from Al-Hasa and destroying their power

protracted wars among themselves for the purpose of enlarging their territorial domains or increasing their wealth. Such tribal wars were possible in the absence of effective central authority. The Bedouin loyalties, although intense, were limited in their scope and rarely extended across the frontiers of the tribes to which those Bedouins considered themselves associated. National cohesion, as we understand it today, did not exist. · For the Bedouin the tribe «was his family

264 — **El-Hamdan, Soliman Aquil**
The Pilgrimage to Mecca ; a study of the physical planning problems with special reference to the increasing numbers of pilgrims and changing modes of travel. Sheffield University, 1976.
2 vols.

This thesis starts with an historical account of the pilgrmage and of its religious, economic and political significance to the Muslim populations of the world and to the government of Saudi Arabia whose responsibility it is to help the pilgrims in their religious duties. The rites and ceremonies, as performed by the Prophet in his farewell pilgrimage in A.D. 632 are described and the changes in numbers, routes and modes of travel over the centuries are described.

Recent changes reveal a very high rate of increase in the numbers of foreign pilgrims coupled with a sharp decrease in the length of time they spend in the region. The causes and effects of these changes have been studied in detail.

New and faster modes of travel, combined with increasing incomes in Muslim countries produced new patterns of movement to and within Saudi Arabia. These patterns provided a basis for the development of forecasting models using an adapted Hotelling-Clawson technique to estimate future numbers of foreign pilgrims for the years 1983 and 1993.

A personal survey was carried out by means of two questionnaires which were distributed to random samples of foreign pilgrims and their (Mutawifs) guides in Mecca. Answers to the questions provided useful information about the needs of pilgrims, the sums of money

force, and in the case of Saudi Arabia the government encourages the Bedouins to settle. Thus, there is a question whether the Bedouins perceive present settlement policies in terms of **tawteen** or **isteetan.**

Further, a second question that must me considered is : why does the Saudi government still encourage the process of settlement? And does the policy of **tawteen** still aim at the idea of detribalization in pursuit of national cohesion ? In the past ibn Sa'ud conducted the detribalization policy to facilitate the establishment and organization of his kingdom. However, this kingdom now has its own territories, has stable international boundaries, is recognized as a sovereign and enduring state, and is no longer subject to dissolution or disruption by tribal actions. Why then is detribalization policy still practiced ? In fact there is nothing mentioned in the Development Plan (in 1970, issued for the first time in the history of Saudi Arabia) which states overtly that the government intends to continue detribalizing its Bedouins : nonetheless one detects in the appearance of the settlement projects that the government is approaching the accomplishment of its detribalization goals.

The answering of the above mentioned questions will be a prelude to a final and significant question which must be answered in detail : What are the effects of detribalization on the political attitudes and loyalties of the Bedouins within Saudi Arabia ? A discussion of these questions and issues will be presented below.

Definition

Detribalization, for the purpose of this study, encompasses breaking up the tribes, mixing them together, settling them on the land, and substituting their tribal loyalty with loyalty to religion and state.

The Statement of the Problem

The present kingdom of Saudi Arabia, which covers an area about one-fourth the size of the United States, was created by the late king ibn Sa'ud from a group of territories that had had little unity since the day of early Islam. Prior to the creation of this state, the Arabian peninsula was mostly occupied by nomadic people who fought

ful only temporarily. During the period from 1745 to 1912 Saudi leaders subdued some of the Bedouins and converted them to Wahabism. Ibn Sa'ud realized that controlling the Bedouins and converting them to Wahabism was not enough to accomplish a cohesive national base within Saudi Arabia. Therefore, he modified his techniques in order to achieve his goal ; the creation of a Saudi state. These techniques have been described by Rihani in the following manner :

> Three things had to be done to bring the Bedu [Bedouins] within the pale of authority, to keep them there and to make them behave : — three things, two of which had been tried by his great predecessors and were only temporarily successful. So he could add a third. He would (1) conquer the Bedu ; (2) make good Wahhabis of them ; and (3) chain them to the soil.

Ibn Sa'ud injected a new and revolutionary concept into the Bedouin society by detribalizing them in order to substitute for their tribal loyalty, loyalty to a territorial state with fixed boundaries. Rihani believed that ibn Sa'ud's comprehension of the Bedouin mentality facilitated his effort to control them. Once asked by Rihani, ibn Sa'ud plainly explained to him how he managed to control the tribes. The king is quoted as saying : «We raise them not above us», he said, nor do we place ourselves above them. We give them when we can ; we satisfy them with an excuse when we cannot. And when they go beyond their bounds we make them taste of the sweetness of our discipline». Furthermore, during a personal interview on June 17th., 1972, Turki al-Sudairi, the vice-president of the General Personnel Bureau, said with this regard : «Ibn Sa'ud was a charismatic leader. One of the most important factors which enabled him to build this nation was his understanding of the mentality and aspirations of his people ; Bedouins and **hadhar** (settled people) alike». Prestige deriving from personal qualities of boldness and piety, and from descent from an important family, enhanced ibn Sa'ud's ability to attract and lead followers and convince them to settle.

It should be remembered at this point that in the Arabic language there are two expressions for the word «settle». These are **isteetan** and **tawteen**. The first expression reflects the idea of the existance of an internal power within the Bedouin society which induces them to settle. The second expression denotes the existance of external

in order to spread law and order within its territory, tries to secure the supreme loyalty of its people by replacing their local and/or provincial loyalty with loyalty to a national state. In other words, it has been the objective of the leaders of those states to reinforce the sense of nationalism among their people, a primary step towards accomplishing national cohesion within their territories. The accomplishment of such a feeling among the Saudi people has occurred in the context of the traditional sturcture and values which have dominated Saudi Arabian society throughout the early period of the creation of the Saudi State.

Tribalism has been a major obstacle confronting the Saudi leaders in forging a Saudi State. Since time immemorial, Bedouin loyalty has rested with the tribe. The welfare and/or aggrandizement of the tribal unit has represented the apex of Bedouin ethical consiciousness.

At the turn of the twentieth century, nationalism started to establish itself in the Arab World. Secret societies and political parties preached and promoted the feeling of Arab nationalism as a means to resist Turkish and other foreign domination. In the territory known now as Saudi Arabia, Turkish influence was nominal and indirect. Thus, insofar as nationalism is a reaction against foreign intrusion, it was premature for a national feeling to develop within this territory. Moreover, the majority of the occupants of this area were illiterate Bedouins whose primary concern was directed toward their tribes and who, therefore, could not comprehend the essence of national cohesion. Because of these conditions, the Saudi leaders were unable to appeal to the tribesmen in terms of explicit nationalist symbols and therefore were unable to motivate them to achieve a cohesive national base as we understand it today. The potential nation was fragmented into tribal units based on consciousness of kinship rather than consciousness of a common nationality or citizenship. The tribal chieftains, each of which ran the affairs of his trible, were recognized as kinsmen by their tribesmen. Those tribesmen found nothing wrong in being governed by such tribal leaders as long as they came from the rank and file of their tribes.

In Saudi Arabia, many patriarchal leaders had tried, since 1745, to control the Bedouins and gain their loyalty : their efforts were success

thesis, is a region manifesting great variability, in natural environment, in settlement and population, and in economic life. Saudi Arabia's vast wealth from oil has both reduced and enhanced this variability : which increases the necessity for research which attempts to picture both the present situation and current trends, identifying problems and seeking solutions, going beyond a superficial account based merely on elementary knowledge and experience.

In Part 1, which treats the natural environment, there is a discussion of the various relevant aspects of the study area's geology and structure, relief and geomorphology, climatology, water resources, soil, flora and fauna. Attention is focused on relationships between these aspects and human society and economy.

In Part 2, which treats settlement and population, an account of the city of At-Taif, the capital of the Amirate, is given. This is followed by a survey of the urban population, including patterns of composition and standards of living. The «floating» population is also considered. Attention turns towards the immigrant population ; among other things, selected communities are studied. Rural population and settlement are also surveyed. Part 2 is concluded by an account of non-sedentary (semi-nomadic) population.

In Part 3, which treats economic life, agriculture is surveyed. Consideration is given, for example, to characteristics of land holding, types of farming, and irrigation. Commerce and industry are then reviewed : their parts in economy and society are indicated.

The thesis concludes by indicating the generalities which have emerged from the work, and by giving recommendations for future development of the Amirate.

263 — **El-Farra, Taha Osman M.**
The Effects of detribalizing the Bedouins on the internal cohesion of an emerging state : The Kingdom of Saudi Arabia.
University of Pittsburgh, 1973.
viii, 243

The major assumption underlying this study is that every state,

tive powers. It also deals with the Hijaz relations with the neighbouring districts of Asir and Najd.

The fourth and last chapter deals with British interests, how their consulate in Jidda operated, and the latter's relations with the valis and sharifs. It also deals with the question of northern Hijaz and Sinai which the Egyptians kept under their rule for many years after their evacuation of Arabia in 1840.

As this field has not been previously studied, earlier material is scanty and of litle importance. He has therefore, had to rely on first hand material especially from the Foreign Office archives His travels to collect material in the Public Record Ofice, christ Church, Istanbul, and Saudi Arabia were fairly successful. There was, however, a disappointment in Egypt. Having obtained permission to use the Egyptian archives, He founds that the documents concerning the latter part of the nineteenth century and the early twentieth century had just been removed elsewhere and was told that it would take time to obtain the necessary further permit.

A final word must be said about spelling and transliteration. It will be noticed that the English of the reports of the consular officials is sometimes grammatically peculiar. The punctuation and spelling of some of them is also idiosyncratic. He has not drawn attention to every such divergence from normal English usage, as in most cases the meaning is quite plain. He has retained the spelling of proper names to be found in reports, correspondence, etc., even where this has resulted in an inconsistancy of transliteration (as for example «Husayn» for the sharif and «Hussain» for the vice-consul), as a have preferred to keep to the original spellings as used by writers of the official documents under consideration. He has also preferred to keep the Anglicized spelling of well known names or places such as Abdul Hamid, vilayet, vali, Mecca, Medina, Riyah, etc. ; otherwise He has generally followed the spelling pattern used by the Encyclopedie of Islam.

262 — Daghistani, Abdel-Majeed Ismail.
At-Taif city and Amirate, Al-Hijaz, Saudi Arabia ; a geographical study. Durham University, 1976.
xxi, 301 p., illus.

At-Taif Amirate of Al-Hijaz, Saudi Arabia, the study area of this

own prisons, his own representatives in every town, etc. This only succeeded in dividing the responsibility in such a way that neither the sharîf nor the vali knew his own duties. This situation was the main cause of friction between the two offices though the main sufferers were the inhabitants and the pilgrims whose interests were often lost between two authorities each claiming to be the representative of the sultan but at the same time shifting responsibility onto the other where harm was done to a pilgrim or an inhabitant.

As time went on, this struggle between vali and sharîf tended to be three cornered as the British consulate of Jidda was drawn in. The British could not be indifferent to what happening in the Hijaz, not only for reasons of trade but for two more important reasons; first, the British as rulers of India and later (1882) of Egypt had strategic interest in the Red Sea Area, and secondly because they had a large number of residents in the Hijaz and as rulers of India they controlled very large Muslim populations and therefore were closely concerned with affairs of the holy cities. Thus we find that Britain in this period established close relations with the sharîfs and were always concerned to ensure that the vali sent by the Ottoman government payed proper attention to their interests. But of course there was a price to be paid for this. The consulate was sometimes a target for hostility and two vice-consuls were murdered.

The struggle between the Turks and the sharîfs only ended with the entry of Turkey into the First World War when they needed the sharif in order to declare a holy war against their enemies. Here the study ends because the Turks' involvement in the affairs of the Hijaz was now virtually ended.

He has divided this work into four chapters. The first is a description of the country and the social life of its people. It also gives a historical background to our period.

The second chapter deals with the Turkish Tanzimat or reforms and their application to the Hijaz administration and examines their success or failure together with the reasons. Here also we give an idea of the financial and military situation in the province.

The third chapter examines in detail the relations between the sharîfs and valis and the factors affecting their relations and respec-

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261 — **Al-Amr, Saleh Muhammad**
The Hijaz under Ottoman rule 1869-1914, the Ottoman Vali, the Sharif of Mecca, and the growth of British influence.
Leeds University, 1974.
ix, 312 p.

This study is an attempt to examine in detail the administrative, political, military, and financial structure of the Turkish vialyet of Hijaz between 1869-1914. He choses the date 1869 as a beginning for this work because it marked the opening of the Suez Canal which led the Turks to pay more attention not only to this province but also to the whole Arabian Peninsula. As is well known, they occupied the district of Hasa in eastern Arabia in 1871 and reoccupied Asir and Yemen in 1872. In Hijaz, they tried to tighten their grip over this vilayet by employing the reforms policy, a movement which had been taking place in the empire since 1839. By doing so they provoked the sharifs of Mecca who realized that the Turks were trying to put them second to the valis. This marked the beginning of the long struggle for power between the sharifs who, more or less, had the backing of the local population especially the bedouins and the valis who had the backing of the Turks, especially their troops in the province. Although the sharifs gave the Turks a great deal of trouble during this period, the Turks dared not abolish the sharifate and make the Hijaz into an ordinary vilayet. This was not only because of the sharifs' influence over the bedouin tribes and their important role in pilgrimage affairs and **mahmals**, but also because of their religious standing as the descendants of the Prophet Muhammad. To attempt to abolish the sharifate would not only have created anger and perhaps trouble for the Turks amongst the Arabs and other Muslims througout the world but also amongst the deeply religious Turks themselves.

The sharifs were not merely Arab princes living in the shadow of the Turkish valis ; on the contrary, the Turkish valis were for most of the time living in the shadow of the sharifs. Hijaz, therefore, was not a vilayet as the other vilayets, but a state within a state with the sharif and the vali each having his own forces, his own courts, his

sondern ist vom Abschreiber hinzugefügt worden ; denn nach den «Nachwort» folgen ein Kommentar über das Werk und eine Abhandlung darüber, wann es geschrieben wurde. Erst danach kommt das Kapitel : «Uber die feinen Sitten des Schlafes und was dazu gehört»

Dieses Werk hat wegen seines über den Bereich des rein Medizinischen hinausgehenden Inhalts auch ein Interesse für einen größeren Kreis der Disziplinen : für Soziologen, Religionswissenschaftler und Philologen. So soll durch die Edition des arabischen Textes diesen Disziplinen, wie den Medizinhistorikern, das Material lediglich dargeboten werden. Die Arbeit hat also grundsätzlich nur die Edition des arabischen Textes zum Ziel. Da jedoch die Edition eines unvokalisierten, zum Teil nicht mit diakritischen Punkten versehenen, zum Teil vom Schreiber der Handschrift offensichtlich selbst nicht mehr verstandenen Textes nur «interpretando modo» erfolgen kann, mußte natürlich jedes Wort interpretiert werden. Diese der Herstellung des arablischen Textes dienende Wort-Interpretation wurde der Edition beigegeben, um dem interessierten Fachwissenschaftler eine schnelle Orientierung über den Inhalt zu ermöglichen. Sie will aber keine endgültige Ubersetzung des Textes sein, und zwar erstens nicht, weil es einem Wissenschaftler arabischer Muttersprache kaum gelingen kann, die Feinheiten seiner Sprache in ebenso feine Nuancen des Deuschen zu übertragen und zweitens nicht, weil die Wortinterpretation schnell und fast unmerklich vom rein sprachlichen Problem sich zum Spezialproblem eines Fachwissenschaftlers, sei es eines Religionshistorikers, sei es eines Kultursoziologen, ausweitet, dem weiter zu folgen jedoch ein Sonderstudium zur Voraussetzung hätte. Für diese weitergehenden Studien muß auf den arabischen Text zurückverwiesen werden. Um diese Tastache zu unterstreichen, wird die der Edition beigefügte Interpretation nicht als Ubersetzung, sondern als ausführliche Inhaltsangabe bezeichnet.

Es sei auch darauf hingewiesen, daß in dieser ausführlichen Inhaltsangabe von den Variaten des arabischen Textes lediglich die jeweils wahrscheinlich richtigere Lesart interpretiert wurde, ohne daß auf die von diesen Varianten gegebenen anderen Möglichkeiten verwiesen wird. Der an textkritischer Analyse interessierte Wissenschaftler muß hier auf den arablischen Text mit seinem textkritischen Apparat zurückgreifen.

such as Habbaba and Sallama. Influenced by this thought, he has begun his writing on the chapters dealing with both literary and social roles of slave-girls with a background shetch which is a brief study of the literary and social roles of slave-girls of the Umayyad period.

260 — **Shobokshi, Ossama.**
Al-Gawahir al-Mahsusa fi sarh al-Manguma von Qasim ibn Ahmed ibn Yamun. Universitat Erlangen Nurnberg, 1970. 32+ 209 P.

Zweites Kapitel : Uber die Verpflichtungen der Ehefrau dem Ehemann gegenüber.

Einiges über Vorschriften der Menstruation.

Die Menstruation verbietet : das Gebet, das Fasten, die sexuelle Vereiningung und Ehescheidung.

Nachwort : Über die Erziehung, Belehrung und geistliche Ubung der Knaben und was dazu gehört.

Uber die feinen Sitten des Schlafes und was dazu gehört.

Das Werk beginnt mit der Diskussion und Erläuterung allgemeiner und besonderer religiös-rechtlicher Termini. Dann schreibt der Verfasser über die Ehe vom Zeitpunkt der Werbung an über die Eheschließung bis zur Schwangerschaft, Von der Schwangerschaft über die Niederkunft bis zur Erizehung der Kinder. Ähnlich wie er begonnen hat, schließt der Verfasser das Werk mit allgemeinen religiösen Erörterungen.

Darüber hinaus behandelt der Verfasser außerhalb seiner Kapiteleinteilung zwei Punkte und zwar :

1. Vorteile des standesgemäßen Unterhalts der Ehefrau.

2. Uber die Problematik der Polygamie.

Das Kapitel : «Uber die feinen Sitten des Schlafes und was dazu gehört», stammt höchstwahrscheinlich nicht vom Verfasser selbst,

stories **(akhbar)**. Al-Asma'i, Ishaq al-Musili and Hammad were among them, and all found favour with several caliphs. The caliph, having his palace crowded with slave-girls, would be pleased when he retired to his private life to listen to stories and tales woven about slave-girls. The caliph al-Mahdi was renowned for his fondness for listening to such stories, and his vizier Ya'qub ibn Dawud used to provide him with them.

It appears that certain story tellers took to the profession of inventing stories about various subjects and spreading them. Among the most attractive subjects was, undoubtedly, slave-girls. For example, al-Asma'i, like other story tellors, was popular inside and outside the court. The caliph wanted him to entertain him with stories, and the public wanted to hear them, and he himself wanted to make money out of them and find favour with the caliph. Slave-girls represented an endless source for him to extract his stories from. In order to have his pocket full of the caliph's **dinars** on one hand, he told him stories about the public's slave-girls and in order to establish his popularity on the other, he told the public stories about slave-girls of the palaces.

The singer, attempting to provide suitable atmosphere for his song, might tell a curious story, as for instance that he had borrowed his song from a slave-girl, adding more details in describing her and praising her talent and ability. The singer Ibn Jami told how he learned a particular song, which won the appreciation of his listeners, among whom was al-Rashid, from a little pale slave-girl in al-Medina. Ibrahim al-Musili told al-Rashid about his musical adventures with three slave-girls and how he used to disguise himself when he went to them. The story goes on to tell how al-Rashid himself was tempted by the way Ibrahim told his story, and that he put on a disguise and went with Ibrahim to the slave-girls.

At any rate, slave-girls initially began influencing society and played their literary and social roles in the Umayyad period. All events concerning both roles in the Abbasid period appeared to be a higher development and a continuity of what already took place in the Umayyad. The climate and the seeds of both literary and social changes on the part of slave-girls in the Abbasid period were found in the Umayyad. The contribution of Abbasid slave-girls such as Arib, Janan and Anan was an extension of the of Umayyad slave-girls

able that slave-girls, through their clothes, their social novelties, their fondnesss for poetry and above all their emergence in the households, influenced the man of that society, his way of life and then his poetical production. He has thus decided to work on the study of this subject, endeavouring to find out how far slave-girls of the «Abbasid period played their social and literary roles. He hopes this work will stand as a useful contribution to serve those interested in such a study.

For the purpose of brevity and in view of the fact that the Abbasid period covered several centuries, he has tried to confine this work exclusively to the so-called first Abbasid period (from al-Saffah's Caliphate, 749 A.D., to that of al-Mutawakkil, 847), but at the same time he has referred to incidents which took place outside this period, especially when the reference was necessary.

However, two difficult things may be expected to confront anybody trying to study such a subject :

1. The approach to this subject is narrative. The majority of the available information is acquired in the form of stories and tales, some of doubtful authenticity. In this case, it is necessary to throw an adequate critical light on such information, an art which requires knowing how widespread and accepted the stories about slave-girls were. This art also requires reading the same information recorded in various books and told by different narrators. Again, a difficult task would arise from the fact that most of these stories were copied or borrowed from **al-Aghani**, even if they were available in other books. In this position, one has to rely upon familiarity with the uncertain nature of the stories and tales told by relators.

2. A great deal of information about slave-girls is subject to exaggeration. This is so not only in the case of their poetical talents, but also of their numbers, their prices and their musical achievements. Such an exaggeration has been dealt with throughout his work.

It seems that discussion of slave-girls in the Abbasid period was customary and appreciated, not only among ordinary people in order to entertain themselves but also in the courts of the caliphs. The caliph usually used to select his association and his boon companions among those with an adequate knowledge of literature, history and

Zaydi Imams of Al al-Qasim family, after having expelled the Turks sought to impose their own rule over the area. Their pretensions to authority were based on descent from the house of the Prophet, and this was to evoke stubborn resistance in the Shafi 'ite peoples outside the Yaman who regarded the Zaydi expansion as an attack on their faith as well as their lands. After some initial success, their attempt at domination resulted in a fluctuating pattern of revolt and repression, in the course of which the old dynasty of the Kathiris in the Hardramawt was destroyed and replaced by the Yafi'is. At the end of this century of constant and inconclusive warfare, southern Arabia was left weak and divided, a medley of petty princedoms.

The tangled and confused history of this period is here treated for the first time, using all the known sources, most of which still remain in manuscript form and are scattered throughout the libraries of the world ; and the aim has been to present a consistent narrative of events. Most existing studies of the region in this period have been limited to the activities of the European trading nations here, and the present work should supply a background to the materials which they present and elucidate certain of the problems they raise.

259 — **Al-Rashed, Naser Saad**
Slave girls under the early Abbaside ; a study of the role of slave women and courtesans in social and literary life in the first two centuries of the Abbasid Caliphate, based on original sources. St. Andrews University, 1971.
vii, 315 p.

For a long time the study of «Abbasid society has had a special fascination for him, not only because it was «The Golden Age» of the Islamic civilization, but also because it witnessed changes in both literary and social life. Naturally, such changes were a result of a mixture of various nations and an intermarriage of different civilizations.

From reading certain books which deal with social and literary aspects of that society, he has been struck by the idea that the numerous slave-girls might have participated in one way or another in such changes. This would not be surprising, since slave-girls in other societies played social and literary roles. It might be seen as conceiv-

257 — **Helabi, Abdul-Aziz Salih.**
A Critical edition of Akhbar Siffin. University of St. Andrewes 1974.
Viii, 108 p. + 532 (Text in arabic)

A study of the Ambrosiana Manuscript and the Berlin Manuscript of **Akhbar Siffin** indicated that the edition would best be based upon the Ambrosiana Manuscript because it has the fuller text and fewer mistakes and gaps than the Berlin Manuscript.

The name of the author of **Akhbar Siffin** does not appear in either of the two manuscripts, and there is no assistance from any other source which may help in identifying him.

The introduction of this edition consists of two parts ; a bibliographical survey of the works on the Battle of Siffin and analytical description of the materials and the manuscripts of **Akhbar Siffin.**

When he decided to produce an edition of **Akhbar Siffin** he discovered four manuscripts dealing with the historical accounts of the Battle of Siffin. The examination of these four manuscripts showed that they are not the same work; two of them are different copies of **Akhbar Siffin.** They are Ambrosiana H 129 and Berlin Q.U. 2040. The other two are different copies of the work of Abu Muhammad, Ahmad b. A «tham al-kufi entitled Waq» at Siffin. They are Ankkra, Saib 5418 and Mingana Collection, Islam, Arab 572 .

The next action was to compare the material of **Akhbar Siffin** with the material of Ibn A «tham's **Waq'at Siffin.** He concluded that **Akhbar Siffin** had more original material than Ibn A'tham's **Waq, at Siffin** and accordingly he decided to edit it.

258 — **Al-Hiyed, Abd-Allah Hamid.**
Relations between the Yaman and South Arabia during the Zaydi Imamate of Al al-Qasim 1626-1732. University of Edinburgh, 1973.
viii, 249 p., map.

The present study examines in close detail the internal history of the Yaman and South Arabia in the period 1626-1732, when the

HISTORY

256 — **Al-Gain, Abdulbar Abdullah**
The In-Situ development of the Bedouin Nomads : a Bayesian decision analysis. The University of Arizona, 1974.
x, 134 p.

Contemporary nomadism appears to be perpetually precarious because technological acculturation has recently rendered it in ecologic disequilibrium with its environment. It is argued that the causes of equilibrium or disequilibrium lie in the nature of the resource-technology calculus : an equation resulting from the synergistic effects and chain reaction involving the technological acculturation of nomadism and its utilization of marginal resources. A stabilization of this calculus is a necessary first step toward a restoration of ecologic equilibrium to nomadism and hence its development with the consequent elimination of its inherent precariousness. The ecologic and economic rationale of pastoral nomadism is demonstrated by the use of three decision theory principles : **maximax, maximin,** and **minimax regret.** It is found that nomads decide on a herd size commensurate with an average stat of nature, which is also economically rational. Proper herd size is deemed to be most important factor in a successful pursuance of viable nomadism. This depends upon a highly uncertain climatic regime.

Bayesian decision theory is utilized to reduce doubt and uncertainly regarding the state of nature. A Bayesian system is designed for a six-tent sheep herding clan of the Mutair tribe of northeastern Saudi Arabia. The goal of the system is to maximize livestock production or the benefit thereof within the ecologic constraints of the region as a proxy goal to the development of the nomads. It is found that an economically optimum herd size corresponds to an average state of nature. The opportunities foregone by understocking are very costly. The Bayesian system is then evaluated as to its capability to bring the nomads into the developmental process of the whole country. It is argued that the attainment of viable nomadism requires knowledge of other factor pertaining to its physical and socio-cultural aspects which are as uncertain and important as the state of nature. These are discussed as unresolved problems.

Abd-al-Wahhab (1703/04 - 1792), and to the present day the doctrines of this reformer remain as the spiritual core of the state. The nature of these doctrines has often been misrepresented, in the East no less than in the West, attracting to itself the hostility which was inevitably aroused by the expansionist political power with which it was associated. The present work attempts to relate the teachings of the movement to the life of its founder, and to examine in detail all the works attributed to him in which these find expression. Those points of his doctrine which aroused controversy and opposition are fully discussed, and the conclusion is reached that it was as reformer rather than an innovator that he should be regarded.

All the known materials relative to the period and the movement have been used, and particular attention has been paid to the social organzation of Central Arabia at that time, showing in what respects it was influenced by the new doctrine and the forces which it released. Efforts have been made to locate manuscripts of Muhammad Ibn-'Abd-al-Wahhab's works in order to control the various texts in print and a first tentative attempt at a chronology of these is made.

chapter examining the inherent weaknesses and the legacy of the movement.

From the late 1750's until his death in 1775, Zahir was embroiled in incessant struggle. To protect his gains and achieve his ambitions, Zahir allied with 'Ali Bey, the virtual independent ruler of Egypt. Together they challenged the Sultan's authority and extended their control over southern Syria up to Damascus which their forces occupied in June 1771.

During his struggles, Ali Bey contacted the Russian fleet in the Mediterranean, seeking their support. The Russians sent small squadrons, helping to subdue Jaffa and Sidon. They also responded to Zahir's appeal to help the Druzes deliver Beirut from al-Jazzar.

The death of 'Ali Bey and the end of the Russo-Turkish war in 1774 forced Zahir to seek accomodation with the Porte. The Sultan pardoned Zahir and confirmed him in his territories only to breach his **firman** by inciting Abu al-Dhahab, the Egyptian ruler, in the spring of 1775 to destroy Zahir. Ironically, Abu al-Dhahab died in June 1775, near Acre, after he had conquered most of Zahir's country and forced him to flee his capital. Hence, Zahir regained control of Acre, but only for seventy days, In August 1775, after an Ottoman naval force commanded by Hasan Pasha arrived off Acre, Zahir was killed and his government destroyed.

Zahir left a deep mark on the history of Ottoman Syria. He gave more weight to his people, introduced monopoly to the economic system, vigorously revived the local tendency of insubordination in Syria and brought to Acre its modern fame. He also was the first Arab ruler in modern times to court European power-Russia.

255 — **Uthaymin, Abd-Allah Saleh.**
Muhammad Ibn-'Abd-al-Wahab ; the man and his works. University of Edinburg, 1972.
vii, 308 p.

The modern state of Su 'undi (Saudi) Arabia had its ideological foundations in a movement of religious revival initiated towards the middle of the 18th century by a Najdi scholar named Muhammad Ibn--

BIOGRAPHY

254 — **Joudah, Ahmed Hasan**

A History of the movement of Shaykh Zahir Al-'Umar al-Zaydani (1690 - 1975) The University of Michegan.
ix, 323 p.

This study attempts to examine closely the different dimensions of Shaykh Zahir al-'Umar's movement and its place in eighteenth century Syria. Between 1706 and 1773, Zahir successfully expanded his power from a modest tax-farmer of a small region in the Galilee to a strong ruler of a vast autonomous state extending sometimes from Sidon to Gaza and from the Mediterranean to the river Jordan.

The primary sources used may be divided into three major catagories : French and English archival material consisting of ambassadorial and consular reports dispatiched from Istanbul and the échelles of the Levant ; contemporary Arabic accounts both manuscripts and published ; and, contemporary European travel accounts. To the author's knowledge, several of these sources have not been used before in any related studies. These materials were supplemented by relevant secondary sources both in Arabic and in Western languages.

Zahir's reign was most important for bringing to northern Palestine an incipient awareness of its great economic potential, particularly through maintaining a prosperous agriculture and developing Acre from a negligible town to a great trading post and administrative center.

There are six chapters in the dissertation : the first, an introduction covering the development of the administrative divisions of Syria from the Ottoman conquest to Zahir's time ; chapters II and III, dealing with the rise of the Zayadinah and Zahir's struggles against neighboring Chiefs and provincial governors ; chapter IV, studying the years of Zahir's paramountcy, 1760 - 1771 ; chapter V, treating Zahir's decline and eventual destruction ; and a concluding

tlements in Urban Areas.» The hilal were also founded mainly since 1950. Most settlers came directly from nomadism and resided in neighborhoods near town. There are dozens of hilal throughout Saudi Arabia and are common near most urban centers. In Qasim there are over 18 hilal near the major towns.

Sedentarization has significantly affected the population distribution, the settlement patern, and other socio-economic features of the country. The proportion of nomads has decreased from 50 to 25 percent of the total population since 1912. The spatial processes of nomad sedentarization are related to traditional settlement. Most traditional settlements in Saudi Arabia evolved from Bedouin settlements. Bedoiun sedentarization in rural and urban areas from both the induced and spontaneous forms will likely continue for the foreseeable future and most nomads may eventually become sedentary.

The results of the study show that Bedouin sedentarization in the Qasim region of Saudi Arabia has taken place through two different but related processes. «Early **Hijar,»** were formed between 1912 and 1930 and were induced by Ibn Sa'ud's plan to settle the nomads. Since 1930, and particularly since 1950, spontaneous settlement has occurred in the «Recent **Hijar,»** the «**Hilal,»** and also in the Early Hijar.

Nomadism has been the traditional way of life in Arabia. During the early part of this century more than one-half of the population of Saudi Arabia was nomadic. This proportion changed drastically when Abd al- 'Aziz Ibn Sa'ud, founder of Saudi Arabia, sought to settle the nomads. Ibn Sa'ud encouraged the Bedouins to settle by persuading them to join the Wahhabi religious reform movement.

Between 1912, when the first Bedouin settlement **(hijrah)** was founded, and 1930, when the program was terminated, over 200 Bedouin **hijar** (settlements) were established. Tens of thousands of nomads became sedentary. In this study, the Bedouin settlements which resulted from this plan are termed : «The Early Hijar : Induced Bedouin Settlements in Rural Areas.» There are over 37 early hijar in Qasim with a total of 145 villages and hamlets.

Another form of nomad settlements resulted from spontaneous sedentarization. This process has accelerated since 1950 because of the improved socio-economic conditions, urban growth, and dissatisfaction with nomadism. Tens of thousands of nomads have settled since 1950 in rural and urban areas throughout Saudi Arabia.

The spontaneous type of nomad settlement in rural areas is termed : «The Recent Hijar : Spontaneous Bedouin Settlements in Rural Areas.» They were established mostly since 1950. The majority of the recent hijar were founded by Bedouins who came directly from nomadism. Some villages, however, were created by Bedouins migrants from the early hijar. There are hundreds of recent hijar in all parts of the country. In Qasim there are more than 44 recent hijar with a total of 75 villages and hamlets.

Another type of spontaneous nomad settlement occurred in urban areas. They are termed : «The **Hilal** : Spontaneous Bedouin Set-

Beide Karten dienten als Grundlagen für die nerstellung unserer Arbeit.

Dabei half endlich auch eine Einsichtnahme in die Spezialkarte von Hofuf (1 : 50 000) der amerikanisohet Militeretfmehms, die auf Luftolldeufnehmen aus den Jahren 1949—55 besrert. Sie enthiyeit neen Ronturlinien die gleichen Angaoen wie die topographische Karte 1 : 500 000.

Die wichtigste Quelle sind indessen eigene **Beobachtungen und Feldstudien.** Ich bin in Begleitung von Hamed Ali und Hossein Adnan von meinem Heimatort Jidda aus dreimal in die Oase gereist, und zwar in den Monaten Dezember 1967, Mitte Februar 1968 bis April 1968, sowie Mai bis August 1968. Die Informationen wurden mir erleichtert durch ein Empfehlungs schreiben des Amir von Riyad. An Ort und Stelle fand ich besondere Hilfe bei Kaufleuten und Handwerkern. So gelang es mir auch, Grundri β skizzen von den beiden Städten zu zeichnen und zahlreiche Photos zu machen.

Bei der Gestaltung des Textes und seiner Anordnug halfen mir Frau Dr. Bertelsmeier und Prof. Dr. Müller Wille. Ihnen danke ich besonders. Für alle mir geleistete Unterstützung möchte ich an dieser Stelle noch einmal herzlich danken.

253 — **Shamekh, Ahmed A.**
Spatial patterns of Bedouin settlement in Al-Qasim region Saudi Arabia. Kentucky University, 1975.

The objectives of the study are : (1) to examine the spatial pattern of the nomad sedentarization process ; (2) to discover the influence of sedentarization on the existing settlement pattern ; (3) to isolate the key factors in settlement, create a model of the sedentarization process, and compare that model with other areas of a nomadic tradition ; and (4) to test some of the contentions derived from the literature and developed from field reconnaissance.

The study is based primarily on data gathered in the field in 1972. A questionnaire was administered in 96 Bedouin settlements.

Seit 1950 entstanden in Dhahran, Rastanora, Alkube an der Ostküste gegenüber von Bahrein unter der Leitung der Aramco (= Arabisch—amerikanische Company) die ersten Bohranlagen. Später folgte die Ras-Tanura-Raffinierie, ebenfals im Besitz der Aramco.

Sie nahm im Dezember 1954 ihre volle Produktion mit einer kapazität von 255.000 Fässern pro Tag auf und erzeugt Benzin, Flugzeug—, (7% Oktan und 90% Oktan-Benzin) Düsenjägertreibstoff, Petroleum, Dieselöl, Heizöl, LPG Leichtbenzin und Asphalt.

Obgleich der grö β te Teil dieser Produkte exportier wird, macht sich — wenn auch nur in Ansätzen — in der Verkehrstechnik und auch in den soziaen Verhältnissen der unmittelbaren Nachbarschaft die moderne Lebensauffassung bemerkbar.

In der **Literatur** wird die Oase Hofuf nur in allgemeinen Beschreibungen der arabischen Halbinsel gelegentlich genannt. Besondere Anregungen empfing ich von den arabischen Geographen : Mohammed T a h a i : Arab. Halbinsel, Cairo, 1965 ; Omar G a h a l l a h : Arabian : Cairo, 1944. Hussein B a d a w y : Landwirtschaft Saudi-Arabien, Cairo, 1950. Fuad H a m s a : Arabian, Cairo, 1935. Hafes W a h b e h : Arabien in 20 Jahren, Cairo, 1946, Schakieb A l A a m a w y : Saudi Arab. Cairo, 1955. Besonders wertvoll waren für mich zwei **Kartenwerke** Erstens : The Geographic Map of the western persian Gulf Quadrangel Kingdom of Saudi-Arabia 1958 von Max Steineke, T.F. Harriss, K.R. Patsons, and E.L. Berg, im M 1 : 500 000. Diese enthalt für das Meer die Isobathen in m, auf dem Land allgemeine Angaben über die Höhe, Geländeformung und Sandgebiete weither sind dargestellt Städte und Ortschaften, Dattelhaine und Anbauland, Verkehrswege, gegliedert in Hauptstra βen, nicht permanente Wege, Kamel pfade, Flughäfen und Landeplätze. Schlie β lich sind aufgenommen Bohrburunnen, gegrabene Brunnen und Was serlächer (dahl), intermittierende Flüsse und Salz sümpfe.

Zweitens : The Geologic Map of the Western Persian Gulf Quadrangel, Kingdom of Saudi-Arabia 1956, ebe falls von Max Steineke, T.F. Harriss, K.R. Patsons and E.L. Berg, im Ma β stab 1 : 500 000. Sie stimmt weitgehend mit der β ersthenannten topographischen Karte überein, enthält jedoch differenzierte Angaben über die jüngsten Ablagerungen und deren Formen.

Oase Hofuf mit den beiden Städten **Hofuf und Mubarraz** gewäht. Eine raphisch zu erfassen. Als Gegenstand der Untersuchung wurde die Oase Hofuf mit den beden Stadten **Hofuf** und **hubarraz** gewäht. Eine Abgrenzung des Gebietes nach administrativen Gesichtspunkten ist nicht möglich ; daher wurde ein geometrischer Erdausschnitt gewählt.

Er liegt swischen 25° 21' n. Br. (= Hochwert 27°°) und 25° 37' n. Br, (= Hochwert 27°°) sowie Zwischen 45° 46' östl. länge (= Rechtswert 354) und 49° 33' östl. Länge (= Rechtswert 373). Mit einer Höhe von 18 km und einer Breite von 19 km ist diseses Geomer 342 km² groB.

Die Gründe, die zur Auswahl dieser Oase führten, sind persönlicher und sachlicher Art. Seit meiner Jugend ist mir dieses Gebiet als das das «Land des kultivierten Grünen», eingebettet in eine wüste Wildnis durch viele Erzählungen bekannt ; insbesondere hat mich die Rede von den weiBen Eseln Al-Hasas, die die stärksten der Welt sein sollen, stark beeinaruckt.

Unter den sachlichen Gesichtspunkten, die eine Untersuchung dieses Gebietes als lohnend erscheinen lieBen, sind vorab drei Lagemomente zu nennen.

Einmal liegt die Oase nahe dem Persischen bzw. Arabischen Golf rund 60 km von der Ostküste entfernt (siehe Abb. 1). Damit sind schon kulturelle Einflüsse und Beziehungen mit den Gegengestaden gegeben, die u.a. darin ihren Niederschlag finden, daB hier Anhänger-der zwei groBen islamischen Richtungen, der Sunniten aus Zentralarabien, also aus dem Westen, und der Schiiten aus Irak/Iran, also aus dem Norden, beieinander leben.

Zum andern stand die Oase lange Zeit (rund 600 Jahre) unter der von Nordwesten vorgreifenden türkischen Herrschaft und bildete eine Grenzmark gegendie sog. Seeräuberküste mit ihren bekannten Inseln Bahrein, Abbu-dabi und mit der Halbinsel Katar sowie den äuβersten Vorposten gegen die südliche Wüste Aljafur. Erst 1914 erfolgte der politishche Anschluβ an Riyda.

Drittens liegt die Oase in unmittelbarer Nachbarschaft der zur Zeit rapide anwechsenden Olforderungsgebiete.

watershed areas close to the high escarpment, and because of the dominance of steep slopes most cultivated land is artifically terraced. Human occupance is of a sedentary peasant village type based on mixed farming.

Up to the last few decades the whole community of Assarah lived in near isolation from the world at large. The whole way of life was based on traditional concepts and values. A case study of Ghamid and Zahran (as a small sub-area of Assarah) shows that farming activities were geared to a subsistence system, social organization was based on tribal codes and traditions and culture and technology remained at a low but functional level.

Following the creation of Saudi Arabia in the 1920's and the economic expansion which the country experienced after 1946, new factors of change began to affect the whole traditional system. As in most underdeveloped areas traditional values in Assarah are losing validity while modern factors are adopted haphazardly. Some of the new changes are beneficial, some are not and some are even deterimental. Shifts from subsistent to commercial production, from traditional to modern technology, and from tribal to national social organization are the main features of the trends of change as recorded in this study.

Many development theories have been advanced to deal with the problems of the underdeveloped countries, but with a surplus of capital, low population density, and particular geographic attributes, Saudi Arabia differs from most other underdeveloped countries. Within Saudi Arabia, Assarah appears as a unique region with its own ecological, economic and social characteristics. Within the national framework, a comprehensive and integrated understanding of these characteristics is required if planned regional development is to be successful.

252 — **Salah, Yousef Saleh**
Siedlung und wirtscheft der Oase Al-Hufuf in Al Hasa .Saudi-Arabian). Westfalischen Wilhems-Universitat 1969.
65 p. + plates.

Vorliegende Arbeit hat sich die **Aufgabe** gestellt, die Wirtschafts- und Siedlungsstruktur einer Case auf der Arabischen Halbinsel geog-

cost and the benefit per unit of land were found to be inversely associated with farm size, substantial gains in benefit from agricultural products could be realized by a reorganization of the small farm. Liquidation of those small farms in Classes 1-4 in favor of larger farm units should result in the reduction of the total cost of production per unit of land. The answer to the third question also involved the benefit - to - cost ration which, as a measure of efficiency, tended to increase as farm size increased. The «t» test analysis, performed to measure the relationship between farm size and efficiency, indicated that these were positively correlated. The relationship was significant at the 99 percent level of confidence. Most of the farmers of the Oasis were over 54 years of age. Although approximately 8 percent of the total farmland was producing for hour consumption, the proportion was exceptionally high for Class 1, i.e. about 50 percent. A low tenant rate was an encouraging feature of the Oasis since over 61 percent of all farmland in the twelve farm-size classes was operated by full owners. Most of the holdings in Classes 1-2 were not fragmented ; however, the degree of fragmentation did tend to increase as farm size increased. In order to reduce the total cost per donum of small farms, special attention should be centered on the reduction of labor costs.

A preliminary cadastral register of all the farms in the Oasis would be necessary for the implementation of farm consolidation. Furthermore, the 1973-1974 agricultural questionnaire does not provide enough agricultural data for a complete analysis, and another system should be developed for collecting detailed information.

251 — **Mughram, A.A.**
Assarh, Saudi Arabia ; charge & development in a rural context. Durham University, 1973.
viii, 338 p.

Assarah is a physiographic region comprising the upper parts of the linear mountain chain extending from Al-Hada northwest of Taif in the north to the Yemen borders in the south. This region is characterized by a semi-arid climate in which the winter is the main rainy season, although some rain falls in spring and summer. High elevation makes summer temperatures milder than in the surrounding regions. Terrain is rugged. Arable land and settlements are scattered along the narrow wadies and dispersed flatands in the upper

GEOGRAPHY

250 — **Abu-Bakr, Ali S**

Cost-size relatonship and efficiency of palm groves in the Al-Hasa Oasis, Saudi Arabia. University of Northern Colorado, 1976.

v, 99 p. maps.

This study attempted to answer the following questions :

1) How significant is the problem of small farm size in the Al-Hasa Oasis as related to efficiency ?

2) Which farm size classes are considered efficient and inefficient ?

3) What is the rank of the various farm sizes according to their economic efficiency ?

4) What effects do cultural and traditional factors exert on the promotion of efficiency ?

In answering the first question, descriptive statistics were utilized to give a comprehensive picture of farmsize distribution throughout the Oasis. The second and third questions were answered by developing a cost-benefit analysis of twelve farm-size classes. The relationship between farm size and its ranking order was measured by Spearman's coefficient of rank correlation, and the «t» test was utilized to determine if the relationship was significant at the 99 percent level of confidence. The fourth question was answered by analyzing data pertaining to four factors : age of holders. production orientation, type of tenure, and fragmentation.

It was concluded that the problem of small farm size in the Oasis is indeed acute. Accordingly, it is recommended that the Ministry of Agriculture and Water adopt appropriate measures leading to the consolidation of farms less than twenty donums. Classes 1-4 were considered inefficient since the benefit-to-cost ratios for these classes were less than one. Inasmuch as these classes constituted over 50 percent of the cultivated area, it was concluded that over half of the cultivated land in the Oasis was farmed inefficiently. Since both the



GEOGRAPHY, BIOGRAPHY AND HISTORY

tends to other areas where life historically was on a more modest scale, but the pace of urban based economics has become more complex.

For operative design that reflect the **Moslem Ideology** and its physical environment, the process should occur in the context of the **environic determinants.** The produced forms are thus justified environmentally and culturally and are in harmony with the historical fabric. This will develop new concepts of design inspired by the past, formulated by the present capabilities, and made with the future architectural demands of Saudi Arabia and the Moslem World in mind.

The design of cities becomes increasingly complicated with the emergence of other factors effecting the city structure, so that economists, sociologists, geologists, environologists, planners, urban designers and architects are urged to concentrate their efforts and synthesize themes in order to produce an effective design prospect.

The city in its general form must be representative of social, political, scientific and artistic factors, combined together, in other words of the culture, and its interaction with the environment, employing technological achievements to crystalize this inter-reflection.

With this perspective of the city, the architect should consider those factors of the design process, particularly when the site of the design is located under the penultimate stress of the physical environment and the unique cultural conditions of the Moslem World. On account of the location of the two most holy places (Mecca and Medina) associated with Islamic culture in Saudi Arabia, it is the most intensively Islamic country of all the Moslem nations. Saudi Arabia,, located in the most hot arid and semi-arid regions, has its unique characteristics which should be reflected in the man-made environment, whose design is the pre-occupation of architects.

This thesis offers a concept of design to architects, indigenous and foreign to be considered throughout all stages of the design process.

Today in Saudi Arabia, the scale of architectural construction is greater than any other place in the Moslem World.[1] Urbanization ex-

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[1] This is an example of the theory of the stages of dynasties of the Moslem philosopher, Ibn Khaldun. According to this theory, Saudi Arabia is a state undergoing its third stage of development. This stage is characterized by buildings and beautifying the cities. «All the ability (of the ruler) is expended on ... erecting large buildings big constructions, spacious cities, and lofty monuments....» Ibn Khaldun, **The Muqaddimah : An Introduction to History**, trans. Franz Rosenthal, ed. and abridged by N.J. Dawood from Bollingen Series XLIII, (Princeton, 1974), pp. 141-142.

sign standards but also on systematic approaches to observation and analysis. Architects should go through the procedure of gathering the necessary cultural-psychological data if they would have their decisions about the environment they design be made conciously and not based on personal whim or bias. While behavioral scientists' collaboration is extremely important in gathering these data, architects themselves should evaluate buildings, especially if they themselves have designed these buildings. This is in order to learn FROM experience rather than only BY experience.

The Saudi study which formed the backbone of this dissertation has produced some general considerations for house planning. These guides are similar to statements of the pattern language developed by Christopher Alexander and others. Dangers inherent in design principles which are only partially eliminated by the development of the pattern language are, however, minimized. This is because these guides are developed for a specific activity (behavior) types, and because their cultural context is clearly spelled out reducing the probability of their inappropriate application. The fundamental virtues of these guides are that they go a long way toward meeting the architect's demand for more information, and that their creative potential makes the architect aware of the demarcation line between the expression of his value and meeting the real need of human requirements, especially the cultural ones.

249 — **El-Gohary, Osamah Mohammed Noor**
Environic design for Islamic cultural ecology. University of Notre Dame, 1976.
xii, 348 p. illus., maps.

Under the local conditions, architectural expression seems to be the result of interplay between the architect and the client. The final production, in terms of designing the physical forms and their location, reflects the client's satisfaction and objectives. In this case, architects are instruments of the client's satisfaction.

Architecture is not only the result of this kind of interation ; there are other tangible and intangible factors that are related to its **environmental, ecological and cultural** aspects.

248 — **Baleela, Moustafa M.**

Design for livability ; the housing requirement of Middle-Income families in Saudi Arabia. Pennsylvania, University 1975. 130 p. illus.

Faced with social and administrative distances between himself and the building user, the architect has had to resort to developing housing designs by satisfying housing standards and by relying on his own assumptions and beliefs. Both housing standards and architectural assumptions have proved to be inadequate.

One of the causes of housing inappropriateness, all over the world, is the lack of understanding families' requirements. In many situations, this is, mainly because of the design professions' unfamiliarity with cultural norms of the people for whom they plan and design.

This dissertation has looked at the relationship between activity, culture and physical design. It has been hypothesized that human satisfaction with dwellings is highly correlated with livability resulting from physical design features which afford the spatial behavior that supports cultural norms. To test this hypothesis, the dissertation has studied housing within the Islamic-Arab Culture. Typical housing users with this culture, are those families living in Saudi Arabia. The case study has focused on middle-income, urban families in the child-raising stage of the family life cycle.

The data obtained clearly show that physical design factors which support cultural norms are the extremely important ones which influence user satisfaction with their built environment. An understanding of culture as one of the behavior components underpinning the activity of people is an essential element for architects if they are to succeed in dealing with client group (s) with different cultures than themselves. On one hand, the more we understand cultural norms, the more we should be able to design environments that satisfy people. On the other hand, the more satisfactory the nonhuman environment, the more we contribute to human well-being. To achieve this goals, the architect should not rely solely on intuition or the conventional de-



ARCHITECTURE

Chapter X compare and analyses non-Saudi examples of land distribution policies. Chapter XI discusses variables specific to the Saudi situation.

Chapter XII examines the case-study areas in more detail in order to isolate problems and requirements for success in Public Land distribution. Chapter XIII is focussed on an assessment of progress and conclusions and attempts to assess future needs for the integration of whole activities of the Ministry of Agriculture & Water and other government bodies both to participate is and to expedite the machinery of Public Land Distribution and development.

However, in the majority of cases where significant differences were shown, the Organic system always shows better performance of the plant or greater flux of geochemicals into the plants than the Stockless system.

No indication of a developed dependance of the barley on the three farm system was obtained. Nitrogen fixation by soil microorganisms appear to be unimportant on the Haughley systems.

247 — **Hajrah, Hassan Hamza**
Public land distribution in Saudi Arabia. University of Durham - The Faculty of Science, 1974.
xv, 341 p. + plates.

The objective of this study is to examine how the land distribution system in Saudi Arabia, rooted in the past and originating in needs recognised in the Islamic Constitution, has developed. A secondary objective is to show the place of Public land Distribution in the context of development in Saudi Arabia.

Chapter I sets the subject in the historical perspective of philosophy and institutions. Chapter II deals with the Constitutional evolution of Saudi Arabia before and after unity, and offers a perspective for looking into specific fields of land control and related problems.

Chapter III is devoted to consideration of government policy towards the first phases of land distribution. Chapters IV and V consider the efforts to develop modern systems for land distribution which could be fitted into the machinery for national development.

Chapter VI deals with agricultural potential and land resources, while Chapter VII is concerned with the land distribution position in Saudi Arabia with reference to social and economic factors.

Chapter VIII examines in broad outline some Case Study areas, and Chapter IX evaluates the development required with particular emphasis on agriculture.

FARMING MANAGEMENT & LAND DISTRIBUTION

246 — Basahy, Abdullah Y.M.
An Ecological study of barley growing under three contrasting regimens of farm management. University of Durham, 1974.
iii, 325 p. illus.

Using barley (Hordeum vulgare L.) as a phytometer, comparisons were made of the three systems of farm management (Organic, Mixed and Stockless), maintained as a long-term experiment by the Soil Research Association (Pye Research Centre) at Haughley in Suffolk. Special attention being paid to the geochemicals of the crops/soil system.

Significant differences were indicated between both «total» and «available» geochemicals of the three soil systems. The differences of available geochemicals are undoubtedly related to the differing long-term management, especially the continuous and predominant use of organic manures and mulches on both the Oragnic and Mixed systems. The unexpected differences in total geochemicals (significantly more Ca, Mg and K in the Organic soils) is tentatively explained on the basis deteriorration of soil structural characteristics in the Stockless system, leading to interruption of the supply of geochemicals by capillary water.

The data collected allowed crude geochemical budgets for the farm system to be attempted and the work was, therefore, supplemented by the lysimeter studies.

The indications for this work are that the geochemicals in the Organic soil are more readily «available» to leaching than those of the Stockless soil.

Phytometry, using both the old «Rika» barley variety used in the long-term experiment, and the new varieties «Julia» and «Sultan», did not, in the main, back up the above findings. This was especially true of the field experiments when environmental factors other than geochemical supply, probably govern the performance of the barley.

mental - climate and water resources -, institutional - MAW, and social-al-Badiah.

The types of livestock, their potentials, economic significance, and spatial characteristics are the main themes of Part Two, which is pomposed of two chapters : one dealing with animal types and the other with their spatial organization.

Part Three, in three chapters, deals with the livestock structure through the evaluation of livestock systems, their present condition and the main problems associated with them.

Part Four deals with the role that livestock can play in the national development and the strategies for livestock development.

The Thesis ends with some concluding remark, summarising the most significant general findings of this study.

12. It is therefore suggested that JH stimulates the transport of neurosecretion as well as its synthesis.

13. The complexity of the interactions between the components of the cerebral neuroendocrine system, together with the ways in which the system may control physiological and developmental events in the locust, are discussed.

14. Acetaldehyde funchsin was developed to stain, more precisely than paraldehyde fuchisn, cerebral neurosecretion in **L. migratoria.** The stain is particularly good in demonstrating the lateral neurosecretory cells, and nurosecretion along both the intra- and extracerebral portions of the NCCII, which are not demonstrable with paraldehyde fuchsin.

15. Histological changes in the lateral neurosecretory cells can be correlated with reproductive development in female **L. migratoria.** It is not known whether lateral cell neurosecretion affects oocyte development directly, or via the corpora allata.

245 — **Al-Saleh, Nasser O.**

Some problems and development possibilities of the livestock sector in Saudi Arabia ; a case study in livestock development in Arid Areas. University of Durham, 1976.

The present study is the first effort to survey the structure of the livestock sector in Saudi Arabia. It is hoped that it will provide a contribution to the knowledge of the livestock geography of the country, by shedding light on the main problems facing livestock development. Particular attention has been given to the limitation and potential of livestock development and the spatial pattern of the present state of the livestock sector.

In the general introduction the present state of livestock and its declining importance in the Saudi economy is emphasised and it is suggested that the recent disequilibrium in the livestock sector is a main reason for this decline.

Part One, in three chapters, examine the extent of the limitations and constraints facing livestock development, mainly environ-

(ii) Both the cerebral neurosecretory cells and the corpora allata combine to control the synthesis of proteins and the removal of the corpora allata will affect this dual relationship.

(iii) Decreased activity of the cerebral neurosecretory system may follow allatectomy.

(iv) There may be a reciprocal relationship between the cerebral neurosecretory system and the corpora allata, and interference with one component of the neuroendocrine system may result in interference with the other.

6. Since section of the NCC produces a transient decrease in blood protein concentration, possibility (ii) above is the most likely.

7. The present results support the hypothesis that in **L. migratoria** both the cerebral neurosecretory system and the corpora allata combine in the control of protein synthesis. It is clear, however, that the experiments described here demonstrate a more important involvement of cerebral neurosecretion in the control of water balance than in protein synthesis.

8. Allatectomy results in a decrease in the size of the nuclei of the A-neurosecretory cells in the brain. Reimplantation of corpora allata rapidly restores the A - neuroscretory cell nuclei to their normal size. •

9. The A-neurosecretory cell nuclei are larger in allatectomized, NCC sectioned, females than those in allatectomized individuals.

10. It is therefore suggested that juvenile hormone, and NCC section, both affect the synthetic machinery of the cerebral A-neurosecretory cells, but towards different ends : JH stimulate the synthesis of neurosecretions, while NCC section stimulates processes leading to axonal regeneration. The A-cells react to JH more rapidly than to NCC section.

11. Reimplantation of corpora allata into allatectomized females leads to a rapid increase in neurosecretion within the corpora cardiaca. When the NCC are sectioned at the time reimplantation of corpora allata, there is a massive accumulation of neurosecretion at the cut ends of the NCCI.

ANIMAL HUSBANDARY & LIVESTOCK

244 — **Kasim, Ahmed Ahmed Ibrahim.**
Effects of neurosecretory nerve section upon the endorine system of Locusta Migratoria, together with observations on the function of the lateral neurosectory cells. University of Sheffield. 1973.
103 p. + Fig. 30 cm.

1. Section of the NCC in **L. migratoria** prevents the release (at least in sufficient quantity) of diuretic hormone for at least 3 days after the operation, but subsequently, diuretic hormone release is sufficient to produce normal excretory rates and hence normal blood volumes.

2. The release of diuretic hormone in adequate amounts which occurs some time between 3 and 5 days after NCC section in **L. migratoria** can be correlated with the histological appearance of the cerebral neurosecretory system.

3. One day after NCC section, the medical neurosecretory cells of the brain contain large numebrs of inclusions ; these inclusions decrease in number with increasing time after the operation, indicating increasing synthesis and transport from the perikarya of the cells of stainable neurosecretion associated with the diuretic hormone.

4. Both the histological and the experimental results support the hypothesis that the diuretic hormone is associated with medial cell neurosecretion, and that its release is correlated with the very early formation of de **novo** corpora cardiaca.

5. The experiments described here suggest that in **L. migratoria** the effect on blood protein concentration of removal of the corpora allata may be the result of one or more of the following :

(i) The corpora allata affect in some way the synthesis of specific female proteins.

but more likely due to an increase in activity, increasing contacts with the prey and the predator seemingly after prey detection less able to inhibit locomotion, long enough to feed.

In the presence of mobile prey EL 273 reduces food consumption as much as PP 675 or Benomyl.

It is suggested that both Benemyl and PP 675 have a range of «acaricidal» effects both lethal and sub-lethal to predator and prey and that EL 273 generally shows least effect. It cannot be stressed too much however that in control work the net effect on the prey relative to the predator is probably the most significant considera-tion but as yet these differentials have not been evaluated.

through the root system into leaves. Many such deposits are invisible when dry and consequently a marker dye had to be incorporated.

EL 273 was least toxic to both predator and prey in the mobile stage. Benomyl and PP 675 was equally toxic to both except ♀♀ red spider mites which show greater tolerance to the latter compound. All stages of predator are more susceptible than the corresponding prey stage.

The behaviour of moving mites in the presence of dye alone or dye plus solvent plus fungicide was briefly investigated. It appeared that the main difference between Red Spider mites and the predator was that the latter seems not able to detect the interface between clean and contaminated areas and the preference shown for clean areas is probably due to a kinetic rather than a tropic effect.

Dyes appeared to have little effect on the fecundity of the mites over short periods of time but in longer experiments it was difficult to overcome dise and droplet deterioration and staravation effects. PP 675 and Benomyl used as droplets or spray reduced egg laying more than the solvent alone against Red Spider mites and **P. persimilis**. Some evidence was produced to show that in the case of the predator the reduced fecundity is related to non feeding and starvation.

Eggs were distributed initially by both mites on the clean areas of the dises but on the 3rd day the initial aveidance of the treated areas became less and eggs were laid equally on the two kinds of substrata.

All three fungicides acted in varying degrees on ovicides. Benomyl had the greatest effect on both predator and prey, PP 675 had an intermediate toxicity to the prey and little against the predator at the concentrations used and EL 273 showed slight toxicity to both predator and prey. Considering only the eggs that actually hatched there was no extension or shortcomings of develoment time with any of the chemicals tested.

Some observations were made on egg feeding by the predator. The presence of Benomyl and PP 675 reduced such feeding but this was possibly not due to a repellent effect or the masking of an attractent

7. The mycelium of colonies of strain 8 on 2% malt agar was killed by exposure to 40°C for 20 minutes. Slow growing and fast growing sectors developed on colonies held at 40° for 15 minutes. The permanence of these changes of habit are being investigated.

   Other strains reacted differently ; some were killed off more quickly and some less quickly than strain 8.

8. In tests using five common building timbers, strains showing differences in decay ability on Scots Pine show similar differences on other common building timbers.

9. Experimental observations with different length of hyphal tips inoculae revealed that pieces which are less than 100 μ long do not survive. A fluorescent technique was used to determine the nuclear distribution within each of these apical cells. This has shown that nuclei tended to lie in the centres of the cells.

243 — Dabbour, Ali, I.
The Effect of Certain selected fungicides on the behaviour of red spider mite (tetranychus urticae Koch) and its predator (Phytoseiulus persimilis Athias Henriot). North Wales University, Department of Applied Zoology, 1974.
v, 110 p.

The main object of this work has been to see whether three selective fungicides, namely PP 675, El 273 and Benomyl show lethal and or sub-lethal effects on the Red Spider mite **T. urticae** and its predator **Phytoseiulus persimilis.**

Toxicities of the three fungicides have been determined using the traditional dip method for the mobile stages of both mites. Some information on toxicities to the eggs of both mites was also obtained. Most attention has however been directed towards the possible effect of the fungicides on mite activity, fecundity, egg distribution, and duration of egg development of the predator and prey and additionally any effect on food consumption by the predator.

Fungicides have been applied mainly as discrete droplets to standard leaf discs but on occasions as fine spray or absorption

in their rate of increase in colony diameter than that found in the dikaryotic cultures.

(c) The greater number of dikaryons showed a relatively faster growth than that demonstrated by monokaryons.

3. A close and consistent correlation has been found between wood decaying ability and the enzyme activity of 6 strains, as measured by rate of hydrolysis of sodium carboxymethyle cellulose by cell-free medium from liquid cultures. Monokaryotic cultures generally had greater enzyme activity and wood decay ability than the dikaryotic culture tested.

4. The fungus has been shown to have a tetrapolar mating system by multiple pairing of two separate populations of monokaryons. The decay ability of the two populations has been found to range within similar limits to those of the dikaryons. The greater number of monokaryons had a higher decay ability than a dikaryotic culture isolated from tissues of the parent sporophore. The decay ability of fifty-seven dikaryons formed from monokaryons of different decay ability is consistently less than that of the most active partner.

5. A long term experiment carried out to examine any differences in wood decaying ability resulting from storing the cultures on 2% malt agar and on wood pieces at each of three temperatures, has shown that at 20°C wood decaying ability is significantly greater in cultures which have been held on wood pieces than those held on agar. The effects of storage at 15°C and at 24°C are generally similar, but the differences are not statistically significant.

6. We have confirmed earlier results obtained by Findlay (1932) and other workers that basidiospores germinated within 7-10 days after they were planted on 2% malt agar + 1% phosphoric acid at 21°C. The chances of germination were, however, increased by picking up the spores directly from the hymenium of fresh sporopheric by use of sterile needle and spreading them on the surface of 2% malt agar medium which was sprayed by 8% phosphoric acid.

Mg and Fe content in the 1973 test when compared to the cultivated control.

Weight of marketable ears and total ear weight in 1972 were decreased by prynachlor at 2 lb/A treatment, however, the number of marketable ears was increased with the same herbicide at the same rate in 1973 experiment. This variation could be due to environmental fluctuation from season to season because prynachlor at 4 lb/A did not show such effectiveness. Uncultivated weedy plots significantly decreased weight of marketable ears and total weight of ears in comparison to all herbicide treatments (except atrazine at 2 lb/A and the cultivated control. All three herbicides used at high concentrations (including atrazine 1 lb/A) were effective in decreasing weed population over the cultivated control of the 1973 study.

242 — **Abu-Hielah, Abdullah Nasser**
Studies of variation in wood decay ability among isolated of Serpula Lacrimans (Wulf ex Fries) Schrot, 1975.
xii, 106 p., Append. illus.

1. a) Great variations in wood decaying ability were observed among the tested strains ; some of them were significantly more active than the standard test strain, while others were significantly less active. There is close correlation between measurement of loss in dry weight and measurement of loss in breaking strength.

(b) The activity of the strains so far collected from the Clyde Valley area is generally lower than that of most of the others. The survey is being continued with a long term objective of looking for patterns in the geographical distribution of differences in wood decaying ability.

2. (a) No correlation has been found between the differences of of wood decaying ability of a variety of dikaryotic and of monokaryotic cultures and their rate of increase of colony diameter on malt agar at 21°C.

(b) Monokaryotic cultures, all of which were isolated from basidiospores of a single fruit body showed much less variation

AGRICULTURAL PESTS.

241 — **Bukhari, Atif Yahia**

Effect of selected herbicide and fertilizer rates on weed control, nutrient content of seedlings, and yield of sweet corn (zea mays var. Rugosa) Kansas State University, 1974. 117 p., illus.

Few studies have been conducted to determine the effect of herbicides on crop plants under different levels of fertilization. This study was established to determine the effect of selected herbicides on yield of sweet corn (Zea mays Var. rugosa, cv Gold Cup) and nutrient content of sweet corn seedlings under different levels of organic and mineral fertilization. The effect of herbicides on weed population was also investigated in the 1973 experiment. The 12 variables studied were : number of marketable ears, weight of marketable ears, total weight of ears, P, K, Ca, Mg, Zn, Fe, Mn, content, and weed control evaluation. This research was conducted in the field, on a fine sandy loam soil near Manhattan, Kansas, during 1972 and 1973, using a split plot design. Fertilizer rates of 10, 20, 30, and 40 T/A of manure as feed lot manure were used, and the NPK equivalent of these rates applied as mineral fertilizer on plots 20 X 20 feet. Three different selective pre-emergence herbicides each at two different rates were split in a band 1.5 feet wide on plots 20 X 3 feet. Cultivated and uncultivated plots were included in the 1973 study. Duncan's new multiple range with 0.05 protection was used for testing the difference between means of the experimental variables. Phosphorus content of sweet corn seedlings both years was increased by organic fertilizer when compared plants from either mineral fertilizer treatments or the control.

Weed population was significantly higher in plots treated with either 30 or 40 T/A organic fertilizer when compared to plots treated with 10 T/A of the same fertilizer, Herbicide treatments in general enhanced nutrient uptake and accumulation by sweet corn seedlings. Phosphorus, Zn and Mn were significantly higher in seedling treated with atrazine 1 lb/A in 1972 when compared to the cultivated control. Lower rates of all herbicides indicated a significant increase in P,

whereas late apex removal proved to be a useful means for reducing undesirable vigorous growth and improving cotton plant productivity.

Apex removal had a stronger influence on the percent dry weight of leaves and fruiting forms than plant population. The late apex removal treatment altered the dry weight partitioning to the various plant parts, especially at the late periods of growth when it resulted in higher dry weight accumulation in fruiting forms and lower dry weight accumulation in leaves as compared with the control and early apex removal treatment.

Evidence presented draws attention to the importance of apical dominance and plant competition concepts as useful tools for use in redesigning the cotton plant structure and thereby improving its productivity. Further investigations into different cultural practices, such as fertilization, irrigation, pest control, weed control, adapted cultivars, mechanical topping and harvesting, and economic factors, are warranted to determine the potentiality of this approach to more efficient cotton production.

yield, boll components, and fiber quality. Cotton plants were grown under three population levels of 7.4, 14.8, and 22.2 plants/m^2. Apex removal treatments consisted of a control and one apex removal in 1971, and a control and two apex removals in 1972.

Higher plant populations modified the morphological characteristics by decreasing plant height, length and number of vegetative branches, number of squares and green bolls, dry weight of plant parts, and leaf area per plant, especially later in the season when competition among plants is greatest.

Dry weight and number of plant parts per unit ground area and leaf area index, however, increased with high population levels.

The mean net assimilation rate (NAR) was not affected by plant population or by apex removal treatments.

Mean crop growth rate (CGR) was highest with the higher population densities in both years. Apex removal had no significant influence on CGR in either year.

Flower and boll production was not significantly affected by population. Lint yield was similar for the three plant populations in both years. Apex removal did not significantly influence yield in 1971. However, a significant reduction in number of flowers and bolls with early apex removal early in the 1972 fruiting season resulted in significant reduction in yield.

Seed per boll was the only boll characteristic significantly reduced with high plant population level in both years. Seed index was the only boll characteristic significantly increased by apex removal both years.

Fiber quality was remarkably stable under different plant populations and different apex removal treatments except for fiber length which was significantly reduced with high population levels in 1972.

Insect and boll rot damage was neither significantly affected by population nor by apex removal treatments.

Apex removal modified plant size and structure. In general, early apex temoval had an adverse effect on plant growth and fruitfulness,

AGRICULTURE CORPS

239 — **Al-Kahtani, Muhammad Saeed.**
Factors affecting seasonal changes of cold resistence in red haven and halford peaches, prunus perpsica, Kansas state University, 1972.
23 p. Diagram.

Deciduous fruit orchardists, throughout the world, may experience crop loss due to warm winters, extremely cold winters, or fluctuations of warm and cold temperatures during winter.

While some excellent opportuniteis for growing peaches can be found in Kansas, where favorable soil and marketing facilities are avaiable, the peach tree apparently does not genetically develop as much cold resistance as most of the other deciduous fruits.

In Kansas severe winter is one of the greatest problems of peach growers. It may kill the flower and vegetative buds. Peach trees are threatened almost every year by cold weather particularly when the temperature fluctuates widely between cold and warm. Growth may occur during warm periods in the winter, after rest termination, resulting in killing of buds if the temperature drops below the critical level.

This work was initated to study some interrelationships among rest period, dehardening conditions and moisture availability, that may relate to the cold hardiness complex of peach trees under Kansas conditions.

240 — **Makki, Yahia Mohamed.**
Effect of plant population and opex removal on narrow-row cotton (gassypium Hirsutum L.) The University of Arizona, 1976.
xiv, 138 p. illus. tabls.

Field experiments were conducted at The University of Arizona Marana Farm during 2 years to determine the effect of plant population and apex removal on cotton (**Gossypium hirsutum L.**) growth,

The new methods of planting long **Tamarix** cuttings without irrigation show great promise of achieving successful plantation establishment on sand dunes easily and inexpensively. For this method to be successful, the **Tamarix** cutting must be long enough and the sand depth shallow enough so that the developing root systems from the cuttings can reach the moisture available in the original soil under the sand. Planting should be done between October and April when temperatures and wind velocities are lower, and rainfall and relative humidity are higher. Perennial grasses such as American beach grass **(Ammophilla brevigulata)** and European beachgrass **(A. arenaria)** should be planted experimentally. They have been successful for sand stabilization in other parts of the world.

The sand stabilization problems in Saudi Arabia are important and significant enough to justify the establishment of a Sand stabilization Research Center at Al Hassa to serve not only the Al Hassa to serve not only the Al Hassa region, but other sand control problem areas in the country.

resistant, saline tolerant, and they can withstand the wide air and soil temperature extremes that often occur.

Only three species, **Tamarix aphylla, Prosopis juliflora,** and **Acacia cyanophylla** have grown successfully. Survival and growth of **Eucalyptus** and **Parkinsonia** have been unsatisfactory, and **Tamarix gallica** proved to be unsuitable because it is a shrub. These plantings, ranging in age from three to eleven years, now form the first sand defense, line, and consist of a belt of woodland about one-fourth kilometer in width between the oasis and the sand dune field to the north.

In the plantings still being irrigated, **Tamarix aphylla** has shown the best survival. Height growth of **Acacia** was about equal to that of **Tamarix. Prosopis** is somewhat taller than the other two species, but both **Acacia** and **Prosopis** show far lower survival than **Tamarix.** In addition, **Tamarix** can be propagated easily by cuttings whereas the other species require seedling nurseries. In plantings which are no longer being irrigated, both survival and height growth were much lower than in the irrigated plantings.

A new method of planting long cuttings (100 to 200 cm) of **Tamarix aphylla** without irrigation was started in the spring of 1975. These plantings are to form the second sand defense line. At the time of this study, these plantings were eight months old. They were made on the windward edges of the sand dunes between palm frond fences 40 cm high erected 15 to 20 meters apart at right angles to prevailing wind.

The most important factor influencing the successful establishment of **Tamarix** cutting is sand depth. Survival ranged from 99 percent at a sand depth of 55 cm to 50 percent at a depth of 200 cm. The number of stems per hectare varied from almost 1,500 at a sand depth of 55 cm to approximatetly 960 at depth of 200 cm. Average stem height varied from 2.1 m. at a sand depth of 55 cm to 0.3 m. at depth of 200 cm.

Afforestation methods of sand done stabilization at Al Hassa oasis have been successful. Although they are more costly initially than mechanical and physical methods, they are more effective. The established tree plantings also serve as windbreaks, and their contribution to aesthetics is considerable.

236 — **Abohassan, Atallah Ahmed.**
Sand stabilization by afforestation in Al Hassa Oasis. Michegan State University, 1976.

Al Hassa, an important agricultural oasis in eastern Saudi Arabia, is threatened by moving sand dunes from the north. In the past the loss of cultivated land to the moving sand had averaged more than two hectares per year. In 1962, the Sand Control Project was initiated by the Ministry of Agriculture and Water in Saudi Arabia to stop the sand's progress, protect the cultivated land at the oasis and its water resources, improve climatic conditions, improve the states of the people living in the oasis, and encourage them to increase their cultivated land.

Early efforts at controlling the moving sand included mechanical and physical methods. The mechanical methods included transposing and trenching. In transposing, the sand dunes in a particularly threatened area were moved by trucks or other means to other locations. In trenching, the sand dune surface was scarred with a bulldozer to destroy its symmetry, so that the moving sand would accumulate in the trenches. These methods did not prove feasible for large scale application.

Physical stabilization methods included covering the sand with asphalt, high gravity oil, mud, a combination of rubble and cement, mud and rubble, and concrete. Generally these methods proved to be unsatisfactory. A common problem was that each of these materials was easilay broken by animals and vehicles and also cracked and fell into fragments in a short time because of high soil surface temperatures. Also, they were expensive and needed to be repeated quite often; therefore, they are not applicable for large scale stabilization.

Among agricultural methods that were tried, sowing grass was effective but slow and expensive, so it was discontinued. Afforestation, both with and without irrigation was also attempted beginning in 1963. This study was conducted at the Al Hassa Sand Control Project in eastern Saudi Arabia, to evaluate sand stabilization by afforestation methods. Initially, six species were user : **Tamarix aphylla, Tamarix gallica, Acacia cyanophylla, Parkinsonia aculata, Prosopis juliflora** and **Eucalyptus camaldulensis**. These species are drought

the clay-water system. Highest pH (9.3) and Na + (0.1 meq/L) were restricted to the first CO_2-free dialysate of clays saturated with Na+ at pH 9.0.

Na-montmorillonites hydrolized, in salt and CO_2 free water, to less than 4% of the clay total CEC. This probably represents the magnitude of the «weak acid» CEC component. After that the pH and Na + concentration drop to extremely low values predicted from Na + -H + exchange reaction characteristic of strongly acidic charges found predominant on montmorillonites. The limited hydrolysis reflects stability of Na-montmorillonites in CO_2-free water.

The slow and sequential H-saturation of Na-clays and soils by repeated dialysis in 10% CO_2-water resulted in displacement of adsorbed Na + beyond that predicted from Na-H exchange reaction for strongly acidic charges. This indicates that partial and slow H-saturation renders the clay unstable with the appearance of lattice ions on exchange sites which enhance desorption of Na+. Upon total H-saturation and aging montmorillonite and soils become saturated with exchangeable Al^{3+} and lesser amounts of Mg^{2+}. Hectorite became totally Mg saturated, and trioctahedral Libby vermicalite (hydrobiotite) had nearly equal exchangeable Al^{3+} and Mg^{2+}

H-clays prepared by H-resin treatment of Na-clay gave approximately the same exchangeable ions (Al and Mg) from decomposition as clays sequentially treated with 10% CO_2-water. Adsorbed Al appeared to be hydrolized to a slightly larger extent in the resin treated samples. Irrespective of the H-saturation procedure, the Al/Mg ratio of exchangeable ions was very close to that in the montmorillonite crystal. CECs of montmorillonite were unaffected by H-saturation-decomposition. This suggests that adsorbed protons degraded the clay along exposed surfaces such that the lattice composition and charge density was unaltered.

Exchangeable Mg originating from the decomposition of montmorillonites and soils is lower than would account for amounts observed for solonetz soils. Interstratified trioctahedral vermiculite-biotite and hectorite developed sufficient amounts of exchangeable Mg to be possibly significant in the genesis of solonetz soils.

AGRICULTURAL ENGINEERING

237 — **Aba-Husayn Mansur Mohammed.**
Hydrolysis and decomposition of some clays and soils. University of California, 1972.
xiv, 125 p.

Hydrolysis of Na-montmorillonites and decomposition of Na-clays and soils after H-saturation, either rapidly and completely from H-resin or slowly and sequentially from 10% CO_2-water, was studied. Namontmorillonite hydrolysis was studied by dialyzing clay suspensions in CO_2-free deionized water. Conditions and variables were :

1) clay pretreatment with NaOAc to remove alkaline earth carbonates,

2) Na-saturation of pH 6.90 or 9.0,

3) clay concentration of 5 or 15%,

4) replacing the dialysate with CO_2-free water,

5) time of dialysis, and

6) temperature of 5 or 25C°. Measurements were made for pH, Na,+ and Si $(OH)_4$ in the dialysates.

Si $(OH)_4$ varied from 0.05 mmole/L to zero. Higher concentrations were associated with least number of dialysate changes, higher temperature, larger clay : water ratio and longer equilibration time. Si $(OH)_4$ content was not affected by pH and Na + variations, indicating that dissolution is independent from hydrolysis.

The dialysate pH and Na + concentration varied from 6.5 to 9.3 and 0.004 to 0.2 meq/L, respectively. Low pH and Na + were associated with lower pH of Na-saturation, smaller clay : water ratio, higher frequency of changing the dialysate, and pretreatment with NaOAc. Low pH and high Na + resulted from long equilibration time, lower temperature, and most importantly, diffusion of CO_2 into

vermiculite $>$ illite $>$ montmorillonite and depends on total solution concentration and initial ESP.

The magnitude of hydrolysis far exceeds that expected from simple «Donnon hydrolysis.»

Alkaline sodium increases with increasing ESP with a corresponding increase in pH with vermiculite and illite, but montmorillonite gave a small increase or small decrease in pH with increasing alkaline sodium.

Good agreement was obtained between measured and theoretical pH for vermiculite and illite but not for montmorillointe.

The effect of alkalinity on iron and manganese availability has been investigated by subjecting tomatoes in sand and soil culture to Na_2CO_3 treatments. Alkalinity has an effect in inducing chlorisis in sand culture which was alleviated by iron and manganese foliar spray. No chlorosis developed in plants growing in soil culture. The increase in the hydrolysis and solubility of organic matter brought about by high alkalinity cause chelation of iron and manganese and renders them available for plant uptake.

Stem thickness was increased by IAA in both light and dark but by kinetin only in the dark. GA had no effect.

In continuous darkness the internodes contained less IAA, but more kinetin and GA than in the light.

236 — **Mashhady. Abdo S.**

The Alkalinity of sodic soils and its relationship to iron a manganese availability. Reading University, 1975.
vii, 254 p., illus.

The literature concerning the physical chemistry of alkalinity, alkalinity development and its relationship to iron and manganese availability has been reviewed.

The relationship between pH and alkalinity has been analysed theoretically and tested experimentally for both pure and soil system and is :

$$pH = 7.8129 + \log (Co_3{}^{2-} + HCO_3-) - \log PCO_2.$$

$Na+ /Ca+^{2+}$ exchange isotherms for vermiculite, montmorillonite and illite at total solution concentration of 0.5, 0.05 and 0.05 N were determined. This was followed by studying the dissociation of Na^+ or $Na^+ \pm Ca^{2+}$ alkalinity development, and pH changes on dilution of clay suspensions.

The exchange isotherms show that $Ca^{2\pm}$ is preferred for the three clays at each ionic strength. This preference decreases with increasing total solution concentration and in the order of :

illite > montmorillonite > vermiculite.

However, change in the free energy of the exchange ($\triangle G$ 0) indicates a spontaneous formation of Na-clay.

Na^+ and limited Ca^{2+} hydrolysis took places during exchange and during dilution. The extent of hydrolysis decreases in the order :

PLANT PHYSIOLOGY & AGRICULTURAL CHEMISTRY

Agriculture & Also Agr. Economics, Agricultural Engineering Agricultural Pests & Animal Husbandry.

235 — **Maghrabi, Yousif Mohammed Saleh**
Internode elongation in phaseolus multiflorus. Cardiff University, 1974.
vii, 147 p. + 161 tables

Elongation growth of the control internodes in light and dark occurred mainly in the top quarter of the internode. The greater growth of dark grown internodes occurred entirely in the top quarter segment which finally became almost 3 times as long in the dark as in the light. Light caused significant reduction in epidermal cell length as well as cell number.

Removal of either tip or leaves reduced elongation by 50% in the light. Removal of the two leaves in the dark also reduced elongation by almost 50%, but removal of the tip had much less effect.

Inhibition of intact plants by IAA in both light and dark is caused by a reduction in cell division following an initial stimulation of elongation. Amputation abolished IAA inhibition, probably by reducing the level of endogenous IAA. The vacuolating basal half of the internode was stimulated by IAA, even in intact plants.

GA stimulates elongation slightly in both light and dark and amputtation increases this stimulation. GA had little effect on the basal half of intact and -T and -L plants, but had a stimulatory effect on the more severely amputated plants. The effect of GA and IAA were additive and never synergistic.

Kinetin stimulates elongation in the light and inhibits in the dark.

Continuous red light (0.5 W/m^2) represents a saturating dose but is only half as effective as daylight in reducing elongation.



PLANT PATHOLOGY AND AGRICULTURAL CHEMISTRY

Experimental studies were made to establish under what conditions a reduction of interfacial tension would increase oil recovery. In cases where recovery is increased, a mechanism for improvement of oil mobility is proposed. Results of the study indicate that to obtain additional oil, the interfacial tension between oil and water must be reduced to a fraction of one dyne per centimeter. Water soluble surfactants rarely reduce the interfacial tension to that extent. In addition, their adsorption on the rock surfaces has proved to be serious problems.

Natural surface active compounds in the oil can be exploited for reducing interfacial tensions by adjusting the pH of injected water. The interfacial tension can be reduced to near zero. Adsorption of the surfactant will be avoided under these circumstances because the surfactant is formed at the interface where the pH-adjusted water comes in contact with the oil. In such systems, increases in oil recovery have been observed. The quantity and time of arrival of additional oil depend on the rate of injection of the water. In general, no increase in oil recovery was observed unless the oil was emulsified in the reservoir. Inasmuch as emulsification is the primary mechanism resulting in increased recovery, an observed rate sensitivity would be expected.

Oil soluble surfactants reduce interfacial tensions to a very low value. When these surfactants are added to oil, emulsions with water are formed with slight agitation. Small slugs of oil containing surfactant were injected into reservoirs. The slugs were followed by water. Oil recovery was increased both at break-through and at a limiting producing water/oil ratio. A decrease in flow rates was observed in these floods as compared to floods with no surfactants. Both floods were kept at equal and fixed pressure gradients. These results indicate that emulsification has occurred within the reservoir, reducing water mobility behind the front and increasing displacement efficiency of oil ahead of the front.

ENGINEERING - PETROLEUM

233 — **Akkad, Ruwaid Ahmed**
Industrial experience at the Arabian American Oil Company in Saudi Arabia. Texas A and M University, 1977.
x, 188 p., illus. diagrams.

This report is a review of the author's six years of industrial work at Aramco in Saudi Arabia. The intent of the report is to establish that this experience fulfills the Doctor of Engineering internship requirement.

The author's work at Aramco was of two types, both of which are covered in this report. First, the assigment as a Development, Production, and Workover engineer, offered him application of academic training in real life situations. In addition to normal engineering design work, the author coordinated operations involving personnel from organizations other than Petroleum Engineering. Second, the assignment as Field Services Foreman gave the aouthor the opportunity to demonstrate his leadership abilities as well as technical competence.

The author's contribution to each of the organizations served was the aggregate of small improvements in various phases of the work.

234 — **El-Nassir, Abdul Rahman**
The Effect of interfacial tension on water flood oil recovery. University of South California, 1972.
x, 153 p., Diagrams.

Efforts to increase oil recovery using surface-active waterflood additives have met with limited success. Oil recoveries in laboratory experiments have not always been as great as hoped for. Even when increases are observed, the mechanism has not been established by which the additional oil recovery can be related to the decrease in the interfacial tension between oil and water.

4. The supersaturation ratio required for nucleation of monosodium urate decreased as the pH decreased in aqueous solution. Below pH 6.3, uric acid crystallized.

5. Exposure of metastable monosodium urate solutions to an X-ray beam did not induce nucleation. The X-ray beam was more intense than normal medical X-rays.

6. When metastable solutions of monosodium urate sealed in microscope slides were snapped with the fingernail or placed in an ultrasonically agitated bath, nucleation of monosodium urate crystals was nearly instantaneous. This indicated that mechanical shock induces the nucleation of monosodium urate.

7. Addition of human and rat collagen fibres to monosodium urate solution did not alter the nucleation temperature. Furthermore, when nucleation did occur, fewer crystals were formed in the vicinity of the collagen than elsewhere.

During the pursuit of this work, it was found that in the medical literature there seemed to be misconceptions and uncertainties about the solubility of uric acid and sodium urate, partly because the words were used interchangeably. For this reason a comprehensive theoretical treatment of factors governing the solubility of uric acid and sodium urate was accomplished. It was found that the solubility of uric acid increases with increasing pH, while the solubility of monosodium urate has a minimum near pH 7.7 at 37°C.

The classical nucleation theory developed for nucleation from pure liquid (melt) and vapor phase was found to predict very high nucleation rates for nucleation of ionic compounds from aqueous solutions. This disagrees with the low nucleation rates observed experimentally. For this reason, a new treatment was developed which predicts lower nucleation rates from aqueous solutions than that predicted by the classical nucleation theory. It was suggested that the solvation energy hinders nucleation in solution, because the ions have to lose at least some of their solvation sheaths before they are able to unite and form a nucleus.

ENGINEERING - CHEMICAL

232 — Khalaf, Ali Abdulrahman
Nucleation and solubility of monosodium urate in relation to gouty arthritis. University of Southern California, 1973.
xviii, 179 p. illus., tab.

It is well known that gouty arthitis is the result of the crystallization of monosodium urate as needle crystals in the human body joints and nearby tissues. For this reason the influence of various additives and treatments on the nucleation and solubility of monosodium urate was investigated. Experimental results showed the following :

1. Addition of 25% V ethyl alcohol reduced the solubility of monosodium urate to one-third of that in pure water. Nucleation of monosodium urate in alcohol solutions required a lower degree of supersaturation than that required in pure water. The supersaturation ratio required for monosodium urate nucleation in this alcohol solution was found to be 3.3, while that in pure water was 4.3.

2. Addition of small concentrations of calcium ion (as calcium chloride) decreased the monosodium urate solubility remarkably. The concentration product of monosodium urate required for nucleation decreased as the ratio of calcium ion to sodium ion increased. Moreover, it was observed that calcium ion accelerated the axial growth of urate crystals.

3. Nucleation of monosodium urate in an aqueous solution of 5% v synovial fluid from two rheumatoid patients required a higher supersaturation ratio than for pure water. The concentration products of monosodium urate for nucleation were higher than those obtained with other additives. This indicated that synovial fluids from rheumatoid patients tend to inhibit the nucleation of monosodium urate. Synovial fluid from a gouty patient showed no effect on the nucleation of monosodium urate. Synovial fluids, both from a gouty patient and from a rheumatoid patient, decreased the solubility of monosodium urate in aqueous solution because of the presence of extra sodium ion (common ion effect).

231 — Tashkandi, Mohammad Ali.
Optimum design of laminated fiber composite plates. California University, 1976.
xvii, 106 p.

The minimum weight optimum design of symmetric, balanced fibre-composite laminates subject to distinct multiple loading conditions each of which specifies inplane mechanical loads and uniform temperature changes is investigated. The formulation includes stiffness, strength and elastic stability requirements as constraints. Three alternative strength criteria, namely : the maximum strain criterion, the Hill-Tsai criterion and the stress interaction formulas are available. The optimization algorithm employed is based on the quadratic extended interior penalty function which leads to a sequence of unconstrained minimization problems that can be solved by using a modified Newton method. Approximation concepts are used to improve overall computational efficiency. The approximations employed are (a) design variable linking to preserve orthotropy, (b) temporary deletion of inactive constraints and (c) use of first order Taylor series expansions to generate explicit approximations for buckling load factors.

Initially the influence of including temperature changes in addition to the mechanical inplane loads for various types of laminated materials is studied. The thicknesses of material (s) used are considered as the only design variables. The study is extended to investigate sandwich plates with laminated face sheets, including and excluding shear deformation of the core material in the buckling analysis. Furthermore, the influence on laminate optimization of taking into account different tension and compression moduli at the ply level is examined. The study was further extended to assess the influence of simultaneous inclusion of thicknesses and orientation angles as continuous design variables. Numerical results for several example problems are presented. These example problems illustrate : (1) the drastic increase in minimum weight arising from a 200°F temperature decrease ; (2) that the use of a sandwich plate buckling analysis neglecting core shear deformation is sufficient for many practical cases; (3) that the influence on the minimum weight of considering different tension and compression moduli is small and (4) that including the ply orientation angles in addition to the material thicknesses does not lead to significant further weight reduction.

already existing system may have to be partially or totally abandoned and new parts be provided at other locations. In order to characterize the technology, the transport system is decomposed into its components parts. Then, the various transport technologies are viewed as processes that combine the vehicle and link inputs in varying proportions for the production of transport service. A precise definition of vehicle intensity is developed to permit the quantification of this attribute of the technology.

To facilitate the comparison among the various transport technologies in this regard, the concept of vehicle intensity is considered explicitly in the formulation of a total cost function.

The evolution of a simple network is modeled. Network development is assumed to take the form of improving existing links and adding new links. The problem is divided into several sub-problems by decomposing the network into sectors and analyzing each separately. Then, the interaction among the sectors is development is assumed to take the form of improving existing links and adding new links. The problem is divided into several sub-problems by decomposing the network into sectors and analyzing each separately. Then the interaction among the sectors is considered in order to obtain the solution to the whole network. The time development of the network is determined using the total discounted cost function as the objective function. A solution is obtained for a single case.

The interregional road transport network in the Sudan is chosen as a case study for which the concepts developed in this research are applied. Total cost functions for interregional road transport in the Sudan are obtained and the evolution of the network under an estimated increasing transport demand is determined.

Sensitivity analysis is performed to assess the impact of some key parameters of the technology and the demand growth relationship on the development of the network.

The dissertation is concluded by summarizing the main finding of the research and pointing out directions for further work in this area.

radial stresses and the dynamic moduli of elasticity were computed using modifications to Grashof's equations for stresses and deflections in a circular plate. These equations are based on the assumption that the material behaves elastically.

The results of this dissertation indicate that the dynamic modulus of elasticity is greatly affected by testing temperature, with which it has linear logarithmic relationship. To a lesser degree, the dynamic modulus is also affected by specimen thickness, initial support pressure, radius of loaded area, and asphalt content. Moreover, this study indicates that there exists a linear logarithmic relationship between the fatigue life and both the radial stress and radial strain levels. However, there is no evidence that the radial strain is the most governing factor in fatigue testing. It is believed that such a finding is attributable to the shear deformasions resulting from test procedure.

From the results of the controlled repeated load tests and from fatigue and dynamic modulus characteristics and within the framework of the existing layered-elastic system theory, a tentative two-layer pavement design procedure is suggested. Design charts that represent relationships between the number of load repetitions to failure and the pavement thickness are developed based on limiting the tensile strain at the underside of the surface. layer. The suggested design procedures indicate that dune sand-asphalt roads can resist only light to medium traffic.

230 — **Alsheikh, Mohammed Abdul-Aziz**
The Choice of technology in transport system development.
University of California, (n.d.)
xi, 134 p. diagrams.

The research undertaken in this dissertation is an attempt to develop a framework that permits the explicit consideration of the network and its evolution in the assessment of the various transport technologies. This is particularly important in developing countries where transport demand is expected to undergo basic structural changes.

During the course of the network evolution, some parts of the

229 — **Al Salloum, Nasser Mohammad**
Fatigue characteristics of an asphalt stabilized Dune Sand.
University of Arizona, 1973.
xix, 344 p. Photograph. diagrams

Most pavement design methods consider static loading conditions in designing and evaluating pavements whereas failure in roads is caused mainly by excessive repeated flexural stresses. The behavior of stabilized materials under repeated actions of loads is an aspect of design that, until recently, has not received much consideration. The aim of this investigation is to study the behavior of an asphalt stabilized soil subjected to repetitive flexural stresses. Wind-blown sand is chosen for this study owing to the fact that the surface of most of the world's deserts consists largely of dune sands with little or no natural suitable road construction materials available.

Samples 17 1/2 in. in diameter, manufactured by the Jimenez kneading compactor, were tested in the Jimenez deflectometer machine, which is essentially a controlled stress type, under controlled repetitive loading. Variabls such as (1) asphalt content, (2) testing temperature, (3) initial support pressure, (4) radius of loaded area, and (5) speciment thickness were chosen, to study their effects on the fatigue characteristics of the asphalt-stabilized dune sand.

The study indicated that the resistance to fatigue failure increases in a linear logarithmic relationship with the decrease in the testing temperature and with the increase in the specimen thickness and the radius of loaded area. The trend of the data indicates the existence of a linear relationship between the logarithm of the number of load repetitions to failure and the initial support pressure given to the specimen at the start of the test. Moreover, this study shows the existence of an optimum asphalt content at which the number of load repetitions to failure and the dynamic modulus of elasticity attain their maximum values. This optimum asphalt content value is unique in that the testing temperature has no effect on it. It is interesting to note that the optimum asphalt content for maximum fatigue life coincides with that obtained for maximum stability.

Knowing the appied stress levels, the support pressures, specimen thicknesses, loaded area, effective specimen diameter, measured repeated surface deflection, and Poisson's ratio of the material, the

228 — **Safar, Mahmoud Mohamed**
Time dependent pore pressure in earth dams. North Carolina State University, 1972.
xv, 250 p.

The role of porewater pressure in the design of earth dams and the worst water level conditions leading to potential slope failures have long been a subject of concern and interest among professional engineers. This investigation is devoted to study such role and to detrmine the intensity and distribution of porewater pressures in a homogeneous earth dam subjected to : (1) full reservoir capacity or steady state and (2) sudden drawdown of water level or the time-dependent state.

A new approach is suggested to solve for the equipotential lines of the steady state in a direct manner. It entails the successive corrections of the X-coordinates of the initially assigned nodes which all lie on selected equipotential lines, while the free surface conditions are observed at all times. The quadratic system of simultaneous equations that results from the formulation is solved for a variety of earth dams with different cross section and the solutions give good agreement with the available results.

The sudden drawdown of water levels behind an earth dam is treated in the study and the consequent effects of porewater pressure magnitudes and distributions are determined. The mathematical formulation of the problems is established in a way that involves the total head (or the porewater pressure) and the hydraulic gradients in the x and y-directions as the unknowns which are determined to provide physical quantities of interest such as seepage velocities and rates of flow. Three examples of earth dams having different geometrical sections are solved and the results reflect reasonable behavior of the time-dependent porewater pressures.

The two problems of steady and transient seepage through earth dams are solved by the more recent finite element technique which is tremendously facilitated by the use of digital computers. The finite element analysis of the steady state is based on variational principles. The transient state analysis is based on Galerkin's process, which is nonvariational and a more direct approach.

227 — **Al-Rashid, Youssef**
An Elasto-plastic constitutive theory for a quartz sand and its application to anchor problems. Colorado State University, 1975.
xviii, 194 p. Diagrams

An elasto-plastic constitutive theory was developed for a uniform quartz sand on the basis of available experimental data. The constitutive theory reflects the following characteristics of sand behavior determined by the analysis of the experimental data : initial stress dependent elastic moduli ; a yield condition best described by the Mohr-Coulomb yield criterion ; plastic flow that is neither normal nor incompressible ; and strain - softening post-yield behavior.

Using the finite element method, the constitutive theory was applied in the solution of anchor problems for which laboratory modeling results were available. Comparison of mathematical results with experimental data led to the conclusion that the constitutive theory accurately simulates the actual behavior of the sand in which the anchors were embedded.

The applicability of certain principles from the theory of plasticity such as incompressibility, normality, and ideal plasticity to the sand was examined by employing the corresponding formulation in solving the anchor problems. The obtained solutions demonstrated that an incompressible flow rule neglects a significant contribution to strength that is attributable to plastic dilatation ; that a normal (associated) flow rule does not apply to the sand ; and that the assumption of ideal plasticity results in solutions similar to those obtained using a strain-softening law.

In addition, the reliability of anchor design methods used in current practice was examined It was determined that these methods generally tend to overestimate soil strength. The overestimation reaches unacceptable proportions for relatively deep anchors (over 700% in one of the studied cases). Such findings led to the conclusion that the design methods should be revised to include all pertinent soil characteristics.

226 — **Al-Rashid, Nasser Ibrahim**
A Theoretical and experimental study of dynamic high way loading. University of Texas, 1970.
xxiii, 384 p. illus, diagrams.

A generalized mathematical model which characterizes the dynamic behavior of five different classes of highway vehicles is described in this dissertation. The model which consists of a series of interconnected masses, springs, and dashpots may be used to predict the magnitude, duration, and location of dynamic wheel loads applied normal to the roadway surface by the wheels of single unit and articulated vehicles operating under varying conditions. The model may be forced by a profile which consists of an array of bumps with different sizes and arrangements in each wheel path, or more realistically, it may be forced by a natural profile recorded in the field by a road profilometer and converted to a suitable digital format. Besides the roadway profile, input for the model includes static wheel loads, numerical quantities assigned to the physical characteristics of the vehicle suspension system, and axle spacing. A computer program which solves the sets of differential equations used to describe the motion of each vehicle and calculates the forces between the tire and the road surface has been written in FORTRAN language for the CDC 6600 computer and is documented with example problems. Preceding the development of this model a brief discussion of the basic principles underlying the theory of vehicle dynamic is presented.

The experimental phase of the investigation described in this dissertation includes the description of a unique strain gage type wheel load transducer and an electronic data collection system capable of recording in analog form the vertical components of dynamic loads applied by the wheels of moving vehicles. A statistically designed experimental program involving the measurement of wheel load forces produced by a representative vehicle of each of the five classes operating at low, medium, and high speeds over four artificial patterns of roughness is also described. The results of the experimental program have been used to provide a validation of the accuracy of the model. The effects of these variables on the magnitude of dynamic wheel loads and their variation from the corresponding static loads are discussed.

volves secondary deflection, or ponding, of the slabs between supporting beams. Solutions were obtained for slabs, either simply-supported or fixed-ended, supported on single spans having various end conditions. In addition, expressions were derived for stiffness and carry-over factors and for fixed-end moments to be used in slope-deflection or moment distribution solutions of two-way ponding of continuous structures.

A study was made of moment-curvature relations for common structural materials. It was found that a Ramberg-Osgood type of equation could satisfactorily represent the behavior of steel and aluminum I-beams and rectangular timber beams. A bilinear relation describes the behavior of rectangular reinforced concrete beams rather well, and one could also approximate that of aluminum I-beams.

Using the general Ramberg-Osgood type of equation to relate moment and curvature, the governing differential equation of ponding was derived. It was nonlinear and quite complicated, and algebraic solutions for even the simplest cases did not appear possible. No attempt was made to obtain numerical solution of the differential equation either.

The nonlinear ponding problem was solved numerically using the Newmark method and iteration. Problems solved were one-way ponding of single spans with various end conditions and of continuous beams and two-way ponding of a single beam supporting either simply-supported or fixed-ended slabs. Flow charts were developed to explain the method.

The bilinear problem was solved after deriving a basic transfer matrix to relate structural actions at the right end of a straight segment of beam to those at the left end. The solutions involve simultaneous transcendental equations in terms of unknown lengths of elastic and inelastic segments of beam. These were solved numerically by the Newton-Raphson method using an electronic computer.

The elastic-perfectly plastic problem was also solved using transfer matrices, and it gave direct solutions for collapse loads.

for analyzing the performance of and the demand on alternative urban goods-movement systems is developed. The data requirements of such a planning process are indicated, and a set of evaluation criteria is recommended which reflects the areas of concern to the system users, the system operators, and the community at large. Finally, an alternative urban freight transportation system, called the Demand-Actuated Freight System (DAFT) is proposed. An assignment algorithm for this system is developed which consists of two stages :

— A «heuristic» algorithm for assigning consignments to trucks; and

— An optimal algorithm for routing trucks within the urban network.

A simulation program to demonstrate the assignment process is presented. The DAFT system is evaluated with respect to the performance criteria developed in this research.

225 — **Mansouri, Abdulwahab Hassan**
Elastic and inelastic response of flat roofs to ponding of liquids. University of Colorado : Department of civil Engineering, 1971.
xxii, 187 p.

Failures of flat roof structures in rain storms have been reported periodically in the literature for a great number of years. Conventional design loads cause a depression to form atop the structure which «ponds» rain water and which is made deeper by it. The added weight of water can sometimes cause collapse.

Only a handful of studies of this phenomenon, dating back to only October 1962, have been reported. Except for part of one, all these dealt only with elastic material behavior. The present investigation was planned to extend the work of past investigators to inelastic behavior and up to collapse.

Two previously-unpublished elastic problems were examined first. The single span having various and conditions and subjected to triangular water load is a part of the problem encountered when one support settles. Two-way ponding of a slab and beam roof system in-

Relative to the other members, a bridge deck is a thin member which has to accommodate a high percentage of necessary reinforcement. A concrete bridge deck requires more and special consideration in the placing, finishing, and curing operations than any other concrete structure.

It is seen that a concerete bridge deck is a structure whose unique features can and do influence its durability. The severe exposure condition of the deck, for instance, is believed to be instrumental in the cause of some durability problems that are unique to this type of structure. One of the problems is the formation of cracks in the concrete directly above the reinforcement. The cracks in themselves are not harmful structurally, but they facilitate the flow of water and brine into the concrete and to the reinforcement. This accelerate the corrosion of the steel and leads to the more important and dangerous problem of spalling of the concrete.

This study is aimed at determining required concrete covers for various bar sizes and concrete slumps to preclude cracking over the reinforcement. As of now, no complete and dependable data are available to give such a recommendation. Most highway agencies now use a 2" cover which is believed to be excessive in certain cases and in others it is not enough.

224 — **Jamjoom, Mohamad Mohamad Omar**
Development of an urban commodity - flows planning process. University of Virginia, 1974.
xiv, 222 p.

The development of a planning process for commodity-flows within urban areas is the objective of this thesis. A methodology for collection of data on urban commodity-flows is advanced, where the approach for collecting data is that is of firm-interviews. A set of relevant data variables is suggested, and the dimensions of each of these variables is specified. Four questionnaire forms are provided to collect the data. The syntheses and analyses of the data collected are demonstrated through a computer program, referred to as the Synthesis Program. This program exposes the different characteristics and dimensions of commodity - movements within urban areas, and at the same time illustrates a method of storing commodity-flows data in order to provide easy accesss to these data. A planning process

for measuring and calculating pore size distribution should be revised to incorporate a means to evaluate the presence of

223 — **Dakhil, Fahd Hamid**
Concrete cover requirements for bridge decks. The Pennsylvaia State University–Department of Civil Engineering, 1973. 104 p. diagrams.

Concrete bridge deck deterioration has been one of the most frequently observed problem in the highway industry. According to a 1955 survey of problems faced by bridge maintenance engineers, concrete deterioration was cited only fourth in the order of frequency of appearance (17). A similar survey made twelve years later indicated that concrete bridge deck deterioration to be first in the order of frequency of appearance (18). The cost of repair works reported ranged from $ 400,000 for one bridge in New York, $ 600,000 for one viaduct in a midwestern state, and $ 1,200,000 for a bridge deck in New Jersey.

Durability problems on bridge decks appear to cause distress conditions that are not usually observed in concrete pavements built on grade. In almost all cases when a concrete bridge deck shows signs of distress, the concrete pavement on either side of the bridge continues to give satisfactory performance. Differences seem to exist between the exposures, functions, and properties of the deck pavement and the adjacent pavements on grade.

In cold regions, bridge decks are treated with de-icing salt during the winter months. Drainage on bridge decks must occur transversely to the «water table areas» of the deck and then longitudinally to the drains. This is in contrast to the natural transverse drainage of a highway pavement surface. Any slight variation in the deck surface permits ponding of brine and hence a retention of salts on the deck.

A bridge deck, by necessity, must withstand the most severe types of stresses. The ratio of live to total stresses in bridge decks is high compared to the other components of the bridge. The stresses in bridges are fatigue producing stresses and they tend to aggravate any defect that might be present in the deck.

The test results supported the operative role of the dual mechanism proposed Cady (1967), without which several observations would have been difficult to explain. Furthermore, the dominance of freezing as the major source of distruptivee forces in the rock pore space was demonstrated in all the samples which experienced appreciable volume changes.

The results have also pointed out the fallacy of using the average pore size, or the absorption, or both, as the sole parametrs to indicate the behavior of a particular rock sample relative to another. While it is true that the average pore size reflects the overall fineness of the pores, it is specifically the smaller pores which intensify pressures developed in the pore space, and which should, therfore, be measured separately.

It has been generally accepted that torks having higher absorption will undergo a higher volume change when subjected to freezing. However, the results of this study indicate that this is not necessarily the case. Rather, whether a rock sample will undergo a large volume change of the depends on a combination of absorption and pore size distribution.

On two rock samples hich undergo the same volume change, one may attain that change gradually while the other changes volume suddenly. The latter is certainly more destructive than the former. This difference in behavior is, assuming other factors are canal, a function of pore size distribution.

Recommendations

On the basis of the results of this study, it is believed that a study in a similar vein but wider in scope is needed as the next step for designing optimal testing procedures to evaluate rock frest immunity. A wider range of rock samples both in composition and porosity, should be employed. The question of thermal conductivity should be investigated well, in order to determine the actual temperatures in the pore space.

Appropriate equipment should be developed before undertaking such a study. The mercury poresimeter should be adjusted for the influence of thermal instability in its pressure chamber. The method

The application of the methodology is illustrated through an example involving the planning of the Hajj transportation system. After reviewing the requirements of Hajj transportation, a set of objectives for the system is developed based on Islamic values and Hajj goals as identified through interviews with some Hajj officials and pilgrims. These objectives and requirements are transformed into a set of principles and guidelines governing the design, operation, and control of Hajj transportation elements.

Alternative local movement systems for pilgrims,. within Mecca and its environs, are evaluated using multi-attribute utility technique. The performance of seven generic modes of movement is first evaluated then the performance of three most likely alternative combinations of modes is compared. The multiplicative form of the utility function was found to be appropriate for both cases.

The evaluation indicates that walking, as a generic mode of movement, has the highest utility score relative to other modes. Moreover, a local movement system composed of walking and bus transit has the best performance compared to alternatives involving passenger cars or rail transit. Sensitivity analysis shows that the above results hold true over wide ranges of the levels of attributes and value tradeoff constants.

222 — **Bakr, Talal Abdulkarim**

The significance of pore size distribution in the Freezing & Thawing of concrete aggregate particles. Pennsylvania University 1971.

vii, 117 p. + Figures.

In analyzing the test results agreement on characteristies, as measured directly and by deduction from the results of the CODTA and volumetric expansion tests, were sought. While there was not complete agreement among the results of the various tests, enough correlations were pointed out to warrant acceptance of the basic hypothesis, that pore size destribution influences the behaviour of rocks during freezing and thawing. The lack of perfect agreement may be due shortcomings in the rest procedured, the complaxity of the subject, or both.

221 — **Bushnak, Adil Ahmad**
Planning & evaluation of special event transportation systems with application to the Hajj. The University of Michigan, 1977. xiii, 209 p.

The transportation systems of major special events exhibit some unique characteristics compared to the conventional urban transportation system. These characteristics are operation at infrequent intervals and for short durations, uniformity of movements, unfamiliar users with diverse needs and backgrounds, dense vehicular and pedestrain movements, strong interactions with other transportation and non-transportation systems, inelastic demand and supply decision behaviour, and unusual safety and security needs.

The collective impact of these characteristics indicates a need for a comprehensive planning approach which directly relates all transportation elements and factors toward achieving stated and intangible event goals and objectives. There is also a need for an evaluation technique which can properly account for the interactions among these objectives and explicitly incorporates the preferences of the decision maker in the evaluation process.

To meet these needs, a methodology is developed for planning special event transportation systems using the approach of engineering systems analysis. The basic steps included in this methodology are : (1) identification of the domain and components of the system; (2) specification of demand, supply, and control requirements ; (3) development of the goals, objectives, and performance attributes ; (4) synthesis of alternative solutions ; and (5) evaluation. The uniqueness of the presented methodology is not found in the approach but in identifying the impact of the unique characteristics of the system on the scope, assumptions, and techniques involved in each of the above steps.

A recently developed evaluation technique based on the concepts of multi-dimensional utility functions is described to facilitate its application. It expresses the utility of an alternative as a function of the utilities of the attributes measuring its performance. The form of this function depends on the preferences of the decision maker and his perceived interdependence among the performance attributes.

sis of inclined intersections along with normally intersecting cylinders was given by Ando, Yagawa, and Kikuchi.[36] The element used in their study was based on Novozhilov and Mushtari-Vlasov shell theory.

1.2 Objective and Scope

It is clear from the above review of previous work in the subject area that a reliable general analytical method of stress analysis of cylinder-to-cylinder intersections is not yet available. With regard to the fininite element solutions, the following is noted :

1) Whenever flat elements are used, the smooth shell surface is represented by a faceted surface. This gometric approximation introduces an error in the analysis, however, the magnitude of the error diminishes with refinement of the mesh ; and

2) In thin shell theory, rotation about the normal to the shell middle surface is usually neglected. This introduces a problem at shell intersections because neglect of the rotation about the normal of one shell restricts bending in the other shell. The error introduced in this case is not affected by mesh refinement

In view of the foregoing, the object of this study is the development of a numerical procedure for the stress analysis of intersecting cylinders. To this end, the finite element method is used. The structure is modeled by three-dimensional elements along the intersection curve, and by curved shell elements everywhere else. The study is limited to elastic, isotropic, and homogenous materials. The effectiveness of the procedure is demonstrated by solving simple problems and comparing the results with available experimental studies whenever possible.

1.3 Notation

The symbols used in this work are defined where they first appear. For convenience they are summarized below :

$\hat{A}$ = a vector orthogonal to both $\hat{B}$ and the normal to the shell middle surface, $\hat{N}$

ing cylinder was assumed to be flat. These and similar assumptions no longer hold for larger values of the ratio of diameters.

Bijlaard, Dohrmann, and Wang[14] tackled the problem when the two intersecting shells are of equal diameters. They formulated the problem using Flugg's equation, but gave no numerical examples The same problem was treated by Van Campen[15] using Morley's equation. He too did not give any numerical examples.

In the late 50's and early 60's a great deal of activity was directed towards experimental investigations of the stress distribution in shell intersections. An extensive program of photoelastic and steel model studies was performed under the auspices of the Pressure Vessels Committee of the Welding Research council. Taylor, Lind, and Sch-results of three-dimensional weiker,[16] and Taylor and Lind[17] reported photoelastic studied of reinforced shell interections. Unfortunately, as Mershon[18] pointed out, the results of these studies can not be used to check the validity of theoretical solutions due to scatter of the photoelastic data.

Results of experiments on «as supplied» steel models were reported by Hardenbergh and Zamrik.[19] Riley[20] reported results for spherical and cylindrical shells subjected to a variety of loadings.

At present a program is under way at Oak Ridge National Laboratory to test several machined steel models under a variety of loadings. Corum, Bolt, Greenstreet, and Gwalthy[21,22] reported results of tests on two of these models.

Since the emergence of the finite element as a powerful tool of stress analysis a number of solutions of the problem of sterss distribution near thin-shell clynder-to-cylinder intersections have appeared bending elements for shell analysis. As an example to show the capability of their program, they analyzed the ONRL model of Ref 22. Their results for the internal pressure loading were in reasonable agreement with experimental values. The same model was analysed by Corum, et al.[21,22] using a program originally developed by Greste[24] to analyse tubular joints. The element used in Greste's program is a rectangular elements that included bending and membrane behavior. Numerical results obtained using this program showed generally good agreement with experimental values. Finite element analysis of the model tested by Riley[20] was reported by Peterson and Kulunk.[26] Analy-

and opposite concentrated forces acting at the ends of a vertical diameter. Hoff, Kempner, and Phole[3] studied the problem of cylindrical shells subjected to line loads applied along a small segment of a generator. Bijlaard[4] presented solutions in the form of tables and charts for the stresses and displacements in cylindrical shellls caused by radial loads transmitted through various attachments.

Lur'e[5] was the first to treat the problem of a cylindrical shell weakened by a circular hole. He used equations derived from the shallow shell theory and wrote the solution in the form of a series of products of Krylov and Hankel functions. His results were limited to small values of hole diameter to shell diameter (d/D), and also small values of the parameter d^2/DT (d being the hole diameter, D the shell diameter, and T is the shell thickness). The same problem was treated in essentially the same manner by Van Dyke,[6] Eringen, Naghdi, and Thiel,[7], and Lekkerkerker[8]. The hole to shell diameter ratio in these studies was limited to small values, typically $\leq$ one-fourth.

The actual problem of the stress analysis of cylinder-to-cylinder intersection was first studied by Reidelbach[9]. He used Donnell's equation for both the intersecting and the intersected cylinders. In Ref 8 Lekkerkerker questions the use of these quations and raises doubt about th possibility of obtaining a numerical solution when the two cylinders are of equal radii without encountering numerical difficulties.

Eringen and Suhubi,[10] and Eringen, Naghdi, Mahmood, Thiel, and Ariman[11] presented solutions in the small diameter ratio problem, d/D $\leq$ one-fourth (d being the intersecting cylinder diameter, and D that of the intersected cylinder). Their solutions were based on the use of Donnell's equation. Yamamoto, Isshiki, Hamada, Hayashi, and Ukaji[12] tackled a similar problem using Flugge's equation for the intersected shell and Donnell's equation for the intersecting shell. Comparison of their analytic solutions with experimental results showed good agreement.

It must be noted that in the case of the small diameter ratio problem several assumptions and approximations were made in order to simplify the analysis. The intersection curve, for example was approximated by a circle in the developed surface. The end of the intersect-

kann. Die sich ergebenden Verbesserungsvorschläge sollen nicht nur der Technik des Gerätes zu Gute kommen, sondern auch seiner Wirtschaftlichkeit.

Auf Vorschlag von Dr. P. Scherer wurde mit dem Bau des Nachlaufkreises begonnen, wobei die Entwicklung des Brückenabtastverstärkers besonders viel Zeit in Anspruch nahm. Aus diesem Grund auch wurde nur ein Teil des von G. Sauer behandelten Themas bearbeitet.

Aus Wirtschaftlichkeitsgründen und aus Gründen der Platzersparnis wurden im Handel erhältliche Bauteile in integrierter Form, z.B. für den Bau des Impuls - und des RC-Generatorverstärkers, verwendet und nicht im Labor hergestellt. Auch braucht ein Bauteil nicht präziserer als erforderlich zu sein. Nach diesem Prinzip wurde das stabilisierte Netzteil dimensioniert. SchlieBlich möchte ich mich bei Herrn Dr. P. Scherer und allen Institutsmitarbeitern für Ihre freundliche Hilfe und Ihre Mühe bedanken.

220 — Bakhrebah, Saleh Abdullah
Finite element analysis of intersecting cylinders. University of Illinois, 1973.
xii, 134 p.

Intersecting cylinders in many engineering installations such as boilers, pressure vessels, networks of pipes, pipe connections, reactor components, and off-shore oil-drilling tower. It is well known that a problem of stress concentration in the regions of intersections arises in these structures. Therefore, knowledge of the maximum stress, and the stress distribution in the junction of intersecting cylinders is of great importance in order to insure proper and safe designs. However, a proper method of stress analysis of these junctions has not been generally available.

Because of the complicated geometrical shape of the intersection region, a direct attack on the problem of stress analysis of interecting cylinders was not possible until very recently. Early workers in this field followed several approaches to simulate cylinder-to-cylinder intersections.

Yuan' rederived Donnell's equation for thin shells[2] and used it to solve the problem of thin cylindrical shells subjected to two equal

tions. Except for very few simple cases, continuum modeling has not been considered in the past as a practical tool for structural analysis.

A new method for obtaining approximate solutions for eigenvalue problems associated with continuum modeling of beams and beam-like structures is introduced here. The method features an efficient, iterative, numerical shooting technique for simultaneous generation of the eigenvectors and estimation of the eigenvalues. It is suited for obtaining .he first dozen or so frequencies and mode shapes. Continuum modeling of this class of structures is becoming practi-by the development of this numerical technique.

The continuum models proposed here subscribe to varying degrees of complexity and generality for application. They are classified in two groups. The first group contains four different types of beam models that consider the mechanical properties of the structures as distributed parameters. The second group is composed of three models to idealize the behavior of multistory buildings. It idealizes the masses as being distributed or lumped, depending on the amount of effort that is necessary to execute the computation.

Various examples of applications demonstrate the effectiveness of both the continuum modeling and the numerical shooting technique in terms of accuracy and economy as a practical engineering analytic tool.

219 — **Amin, Hassan Bokhari**
Die meßanlage, die von G. Sauer (9) entworfen und gebaut wurde, soll mit neuen Bauelementen und fur zweikanalbetrieb konzipiert werden. Institut fur Technische Akustik, 1971. 50 p.

Das vorliegende Thema wurde bereits in ähnlicher Form von Herrn G. Sauer im gleichen Institut bearbeitet. Die technische Entwicklung auf dem Gebiet der Bauelemente machte eine Neufassung der Arbeit erforderlich. Dies ist erfahrungsgemäß schwieriger als die Ausarbeitung eines noch nicht behandelten Themas, da man sich zunächst detailiert und kritisch mit den bereits gedachten Gedankengängen auseinandersetzen muß und erst danach neue Entwicklungsvorschläge machen und sich Realisierungs. möglichkeiten überlegen

ENGINEERING - CIVIL

218 — **Abdulkarim, Omar Ibrahim**
Continuum models for the dynamic analysis of beams & beam-like structures. California University, 1977.
viii, 130. + app.

Dynamic analysis of beams and beam-like structures may be approached by either continuum or discrete analytical models. Continuum modeling is better in characterizing their behaviour but suffers from lack of availability of practical methods of solution. An efficient numerical method is developed herein to obtain solutions to the vibration problems with continuum modeling. Its application is demonstrated for some familiar continuum models for beam-like structures and for some newly introduced ones.

Dynamic structural analysis requires an optimum choice of the analytical scheme to be both fairly accurate and economically reasonable. Analyses are usually made by approximate analytical models. These models come from two distinct categories : continuum models (also called distributed parameter models) and discrete models (or discrete parameter models). The former is recognized by defining the mechanical properties of the structure all points along its spatial coordinate. The discrete models assume the structure to behave like a collection of elements of finite size the mechanical properties of which are defined at the interconnecting joints. This latter type of modeling has been used extensively in the past due to the availability of mathematical techniques to obtain the numerical solutions and due to its suitability for automatic representation in modern digital computers.

Continuum modeling of beams and beam-like structures that are idealized by linear elastic behavior has been considered recently with varying degrees of refinement to perform limited tasks. The difficulty with considering continuum models with greater generality has come from a lack of practical analytical techniques to obtain numerical solutions for the vibration problem, which leads to an eigenvalue problem in the form of one or more second order, coupled ordinary, differential equations augmented with appropriate boundary condi-

ponent parallel to the wall and normal to the axial direction in the boundary layer. The direction and magnitude of this component varies as the distance from the corner increases. The presence of the corners also caused a distortion of the isovel lines (lines of constant axial velocity in the cross-section the duct) for the steady flow. The imposed axial sinusiodal oscillation on the free stream becomes three dimensional in the boundary layer and generates a three dimensional Reynolds stresses. These Reynolds stresses generate a three dimensional secondary flow. The axial component of the secondary flow causes further distortion in the isovel lines.

A comparison between the laminar flow with a superimposed oscillation and the undeveloped and developed turbulent flow in the same rectangular duct are presented. This comparison shows similarity between the distortion of the isovel and the cross-flow pattern in the two cases. The similarity also exists between the distribution of the intensity of the velocity oscillations and the intensity of the turbulent fluctuations and between the distribution of the Reynolds stresses.

A natural history of deposited water on steam turbine fixed blades has been presented as a block diagram with the support of the available references for each process.

The natural breakdown of the film into rivulets and drops is illustrated by the analyses of the external forces acting on a rivulet flowing over a steam turbine fixed blade.

A physical model has been constructed to show the three-dimensional geometry of a rivulet element, from which the gravitational force components can be obtained for all possible blade orientations.

Photographic studies of dry patches of different flow rates have been presented.

217 — **Sabbagh, Jafar, Abdul-Arrahman**
Flow with superimposed oscillation in rectangular duct. Cornell University, 1970.
viii, 157, Diagrams.

The laminar flow with a superimposed oscillation in a rectangular duct was studied experimentally and theoretically. The experimental study was made in an open circuit wind tunnel with low free stream turbulence intensity. The flow was oscillated by a rotating paddle down stream of the test section. Measurements of axial and cross-flow velocities for the steady flow and for the flow with superimposed oscillation are presented and discussed. The measurements of the axial component and the transverse component of the oscillation are presented and discussed.

The problem of oscillating boundary layer near a corner was solved as a singular preturbution problem. The influence of the corner on the boundary layer was introduced as second order. The flow oscillation was assumed small and has small frequency $\left(\frac{\omega x}{U} << 1\right)$. Thsee assumptions were made to simplify the solution The solution is presented and discussed.

The experimental results and the analytical model shows that for the steady flow, the corners of the duct induces in a cross-flow com-

For the stable film, four theories were chosen out of many avialable and uesd to estimate the properties of a horizontal film flow motivated by steam drag. On the other hand, five theories were used to estimate the properties of inclined and vertical film flow due to the action of gravity only. A comparison was made between the theories themselves and also of their respective predictions with experimental values. The result of the comparison was a critical review of the methods which have been developed in the past to predict conditions under which a liquid film flowing down a vertical surface or on a horizontal surface breaks up to form a stable dry patch.

Analysis shows that uncertainty exists regarding the value of the correct contact angle to be employed in the existing theories. From our experimental analyses of the dry patch formation we concluded that only contact angles in the range of 10° to 20° could align the theoretically predicted results with the observed experimental values.

In order to obtain the contact angle a complete survey has been presented of the existing theoretical and experimental analyses of the shape of a water drop on metallic surfaces. A new equation has been developed to find the value of the tangent to the drop profile at the point of contact. This new method, which assumes that the drop shape is part of an oblate spheroid has been verified, and the results obtained show good agreement with the results of other workers.

The contact angle was measured for a liquid drop on a clean, and on a contaminated steam turbine blade, on surfaces consisting of smooth and rough Bright steel and on P.T.F.E. The variation of the contact angle with time was also obtained.

An analytical study for finding the minimum free energy of a sessile drop or rivulet has been made for the following cases :

a) A drop partially wetting and non-wetting the surface from the dimensions of a drop which minimises its free energy has been made.

The significant elements of surface area have been obtained for a sessile drop and for the wetted portion of the solid on which it rests under wetting and non-wetting conditions at all possible values of the drop distortion.

ENGINEERING - MECHANICAL

216 — Khoshaim, Bakr Hamzah.
The flow of rivulets over L.P. Steam turbine guide blades. The University of Liverpool - Department of Mechanical Engineering, 1975.
xxviii, 206 p. + figures.

In this thesis, some aspects of the flow of thin liquid films on low pressure steam turbine fixed blades and other internal surfaces are investigated at realistic steam turbine conditions.

Measurements have been made of the film thickness on inclined and on horizontal surfaces swept by steam at different velocities, and at the point of dry patch formation. Measurements have also been made of the related parameters such as temperature, pressure, steam and film velocities, and mass flow rate steam and water.

A test «blade» to operate wtihin an existing steam tunnel test section was designed and constructed to provide results at different selected conditions.

The approximate range of steam stagnation pressures was from 0.6 to 0.9 bar, with steam velocities from 25 m/s to 76 m/s. The test section blade, 7.6 × 19 × 1.27 cms, was positioned in the middle of the 7.6 × 40 × 7.6 cms test section, and was capable of being tilted up to 17 degrees to the horizontal in either sense about an axis perpendicular to the direction of steam flow.

The film was introduced artificially onto the flat «blade» at the flow rates of 57.5, 36, 16 cm^3/min and down to 3 cm^3/min depending on the M.W.R.

For the film thickness measurements, the injection water was salinated with sodium chloride of concentration 0.394% by mass. The resulting electrical conductivity enabled film thickness measurements to be made by employing a single-pole earth-return probe. The same device was used to obtain the film velocity.

The integrated approach is based on module theory and convolution algebra and provides a unified conceptual framework for studying the behaviour of various types and forms of systems in the time domain. New algorithms are developed for this application.

The concept of characteristic patterns is introduced which enables the projection into the structure of input/output maps. A systematic time-domain design methodology is consequently developed and applied to a pilot-scale plant.

Pattern recognition is applied to the discrimination of the order of multivariable linear system and to identifying single variable charactertistic patterns.

The highly flexible and practical aspect of the facility is domenstrated.

$$V_{r2} = 5{,}72 . 4{,}334 = 24{,}8 \text{ A}$$

$$V_{l} = 0{,}8 . 0{,}0817 . 7600 = 496 \text{ A}$$

$$H_{l} = 6070 \frac{\text{A}}{\text{cm}}$$

6. 12 **Zusammeniassung :**

	B in G	II in A/cm	V in A
Luft	7600	6070	496
Ständerzähne	14100	21,2	91
Läuferzähne	16000	50	180
Stände rücken	14000	8,3	132
Läuferrücken	11800	4,334	24,8

6. 13 **Magnepische Spannung im Eisen :**

$$V_E = V_{z1} + V_{z2} + V_{r1} + V_{r2} = 91 + 180 + 132 + 24{,}8$$
$$= 427{,}8 \text{ A}$$

$$V \mu = V_E = V_l = 427{,}8 + 496 = 923{,}8 \text{ A}$$

6. 14 **Magnetisierangsstrom**

$$I \mu = \frac{2 . P . V}{1{,}35 . \zeta_A . z_1} = \frac{4 , 923{,}8}{1{,}35.0, 36.120} = 22{,}3 \text{ A}$$

215 — Thiga, Reda Seraj Abdul Ghani
Computer aided identification & design of discrete control systems. Bradford University, 1975.
213 p.

This thesis describes an interactive command language developed to implement an intergrated computer aided identification and design facility for computer control applications. It is intended to operate at the supervisory level in a real-time hierarchical environment.

acoustic handwidth of the surface acoustic wave (SAW) transducer and the Bragg bandwidth. The first inherent limitation of guided wave AO devices which employ a single interdigital transducer and thus a single SAW, is their relatively limited acoustic bandwidth. This limitation results from the fact that the fractional acoustic bandwidth is inversely proportional to the number of finger electrode Pairs, while the electric - acoustic conversion efficiency is proportional to the number of finger electrode pairs squared. It follows that a balance between the fractional acoustic bandwidth and the electric acoustic conversion efficiency will automatically limit the former to a relatively small value. In the meantime Bragg bandwidth of guided-wave devices not only is limited by the acoustic center frequency, the bandwidth and the aperture of the SAW, but also depends on the diffraction efficiency of the device and the optical modes involved. In order to realize a large Bragg bandwidth (assuming an acoustic bandwidth sufficiently larger than the Bragg bandwidth), the aperture of the single SAW must be chosen very small. This requirement in turn results in a drastic decrease in diffraction efficiency. Under such an unfavorable condition, a device with both large diffration efficiency and large bandwidth requires a large RF drive power, which may easily result in the failure of the interdigital transducer. Thus it can be concluded that the diffraction efficiency-bandwidth product of a guided-wave AO device using a single SAW is rather limited.

214 — **Al-Humeidan, Abdullah S.**

Drehstromasynchronmotor Fachbereich, Elektrotechnik, 1973. 34 p. plates.

$$1_{r1} = \frac{\pi\,(Da - ha1)}{4.p} = \frac{\pi\,(45.0 - 4,7)}{5} = 15,6 \text{ cm}$$

$$V_{r1} = 15,8 \,.8,35 = 132 \text{ A}$$

$$V_{r2} = 1_{r2} : H_{r2}$$

$$1_{r2} = \frac{\pi\,(d_i + h_{r2})}{4 \cdot P} = \frac{\pi\,(9.5 \pm 5,072)}{4.P} = 5,72 \text{ cm.}$$

a) Literatur, die bei dieser Arbeit berücksichtigt wurde,

b) Literatur, die der weiteren Vertiefung dient.

213 — **Alhaider, Mohammed A.**
Lithium Niobate Optical waveguides & wide-band Acousto-optic bragg diffraction using multiple tilted surface acoustic waves. Pittsburgh University, 1977.
xxiv, 205 p.

First part of this thesis describes the fabrications and the measurements of high quality graded-index $LINBO_3$ waveguides thin fim graded-index waveguides were fabricated on $LINbO_3$ crystals by a modified outdiffusion technique. This method has found capable of creating a high quality waveguiding layer requiring neither polishing nor poling after fabrication - waveguides fabricated by this technique could support a single TE_0 mode of excellent beam profile with attenuation loss of 1 db/em or less. The waveguide depth is estimated to be 7 um and $\triangle n\ 5 \times 10^{-4}$ .The throughput coupling efficiency was measured to be 25% which is the highest value reported for this type of waveguides. High quality optical waveguides have also been fabricated by diffusing Titanium in to $LiNbO_3$. The changes in the reiractive indices are estimated to be 0.02 and 0.01 for TE and TM modes, respectively, with a depth of 2 um. the waveguides fabricated by this method exhibited good beam quality and a throughput coupling efficienty was as high as 40%. These waveguides combine qualities such as ease of fabrication, confinement to a thin layer of 1-2 um and the possibility for mode conversion between TE and TM modes. Another advantage, nor possible with the waveguides fabricated by the outdiffusion technique, is the ability to perform various lithographic processings for the realization of integrated optical circuitry.

Second part of this thesis describes the analysis, design fabrication and measurement of wideband guided-wave acoustooptic deflectors using the LiNbO optical waveguides discussed in the first part. In many potential applications involving acusto optic (AO) devices, the most important device parameter is landwidth, in addition to the diffraction efficiency which determines drive power requirements. Bandwidth of o guided-wave AO Bragy B ragg device is limited by both the

212 — **Allar Alawi**
Untersuchung uber den einsatz von gasturbinenkraftwerken fur spitzenlast und steile lastanstiege. Institut F. El ektrische Analgen. U. Energiewirtschaft, 1971.
126 p. illus.

Diese Arbeit ist eine Untersuchung über den Einsatz von Gasturbinenkraftwerken für Spitzenlast und steile Lastanstiege. Im Rahmen dieser Untersuchung werden Vergleiche zwischen Gasturbinenkraftwerken und Pumspeicherwerken hinsichtlich Kosten und Verfügbarkeit angestellt.

AuBerdem wird noch eine Diskussion über derzeitige Entwicklungstendenzen und Entwicklungsmöglichkeiten von Gasturbinenkraftwerksanlagen angeschlossen.

Der Stoff wird in folgender Reihenfolge bhandelt:

1) Es werden die häufig vorkommenden Grundbegriffe erläutert.

2) Es werden die Probleme der Spitzenlastdeckung hinsichtlich der Stabilität des Verbundnetzes sowie der Wirtschahtlichkeit dargelegt.

3) Es wird die Eignung der verschiedenen Kraftwerktypen für die Spitzenlastdeckung diskuitiert. AnschlieBend wird ausführlich in zwei aufeinanderfolgenden Abschnitten über :

4) Die Gasturbine

5) Die reinen Dumpspeicherwerke berichtet.

6) Es werden Gasturbine und Pumpspeicherkraftwerke hinsichtlich ihrer Kosten und Verfügbarkeit verglichen.

7) Es werden die Entwicklungstendenzen und Entwicklungs möglichkeiten von Gasturbinenkraftwerksanlgen dargelegt.

8) Ein ausführliches Literaturverzeichnis wird ans Ende dieser Arbeit gestellt.

Die Modelle sind danach für die dyn. Querdehnungszhal brauchbar. Es hat sich hierbei auch gezeigt, daB die Modelle GesetzmöBigkeiten aufweisen, die selbst beim E-Modul (siehe hierzu / M1/) nicht erkennbar waren.

Es wurden Vorschläge und Anregungen für weitere Forschungen und notwendige Versuche zur Klärung einiger Eigenschaften der stat. und dyn. Querdehnungszahlen gemacht, die auBerhalb des Rahmens dieser Arbeit liegen oder hier nicht vollständig geklärt werden konnten.

Für die Praxis wurden folgende Gleichungen für stat. und dyn. Querdehnungszahl und ihre Anwendung gezeigt :

$$\mu_{stat\ b} = V_m \cdot \mu_m \left(1 + 0{,}2\ \frac{\mu_k}{\mu_m + \mu_k}\right) + V_k \cdot \mu_k \left(1 - \frac{\mu_m}{\mu_k + \mu_m}\right)$$

$$\mu_{dyn\ b} = \frac{1}{2} \cdot \left((\mu_m \cdot V_m + \mu_k \cdot V_k) + \left(\frac{1}{\frac{V_m}{\mu_m} + \frac{V_k}{\mu_k}} \right) \right)$$

darin bedeutet:

$\mu_{stat\ b}$ = statische Querdehnungszahl des Betons

$\mu_{dyn\ b}$ = dynamische Querdehnungszahl des Betons

μ_m = Querdehnungszahl des Zementsteins } Tab. 33 a und b

μ_k = Querdehnungszahl des Zuschlags } bzw. 34 a und b

V_m = Volumenanteil des Zementsteins

V_k = Volumenanteil des Zuschlags

Schalloufzeitmessungen, hängt aber sehr stark von den Feuchtigkeitsverhältnissen ab.

Einige theoretische überlegungen wurden u.a. bestätigt und durch Regressionsformeln zum Ausdruck gebracht.

Zur Bestimmung der dyn. Querdehnungszhl im Zweistoffsystem Beton wurden mehrere Modellvorstellungen übertragen und entwickelt, die den EinfluB der unterschiedlichen Miscuhgsverhältnisse und Querdehungszahlen von Matrix und Zuschlag berücksichtigen. Die Modellgleichnungen für die dyn. Querdehnungszahl wurden für die stat. Querdenhnungszahl so umgeformt, daB ein Teil der Matrix und ein Teil dem Zuschlag entsprach und daB sie eine dem Matrixanteil sowie eine dem Zuschlaganteil zugeordnete Konstante C_m bzw. C_k und eine unabhängige Konstante C enthielten.

In einem Regressionsprogramm (65 Werte der Literatur) konnten die Konstanten C_m, C_k und bestimmt werden. Sie sollen als erste Näherung den EinfluB der Spannungskonzentration darstellen. Die Regressionsergebnisse haben gezeigt, daB die erzielten Modellgleichungen für die Querdehnungszahl des Betons gut braushbar sind. Durch die verschiedenen Ansätze, ihre Betrachtung und graphische Darstellung konnte eine Modellgleichung entwickelt werden, die dem Kraft - und Dehnungsverlauf im Beton entspricht. Die Ableitung dieser ser Gleichung stützt sich auf die Betrachtung der Dehnungen im Zuschlagkorn sowie in der Matrixschicht, die durch das unterschiedliche Verformungsverhalten von Matrix und Zuschlag sowie bei der Kraftübertragung von der Matrix auf das Zuschlagkorn beeinfluBt werden. Die Gleichung besitzt ein BestimmtheitmaB von ca 96% und ergibt beim Volumenanteil des Zementsteins = 1,0 genau die gleiche Querdehnungszahl des Zementsteins und beim Volumenanteil des Zuschlags = 1,0 etwa die gleiche Querdehnungszahl des Zuschlogs. Die vorhondenen Abweichungen des BestimmtheitsmaBes von 4% hängen mit den in dieser Arbeit noch nicht berücksichtigten Einflüssen wie ZuschlaggröBtkorn, Kornzusommensetzung usw. zusommen.

Die Brauchbarkeit der Modelle für die dyn. Querdehnungszahl wurde einmal anhand der Auswertung in Abschnitt 4.2 und zum anderen anhand der aus der Literatur gesammelten Werte durch Kalssifizierung der prozentualen Abweichungen der beobachteten von den vorhergesagten Werten festgestellt.

ELECTRICAL& ELECTRONIC

211 — **Al-Abidien Habib Zien**
Dynamische und statische Querdehnungszahl des Betons in Abhangigkeit von den verschiedenen Einflubfaktoren - Literaturauswertung und Entwicklung von Modellvorstellungen uber Moglickeiten ihrer Beschreibung und Berechnung im Zweistoffsystem Beton. Prufung, 1975.
xii 166 p. + plates.

In dieser Arbeit wurden zunächst Bedeutng, Stand der Forschung und Verfahren zur Bestimmung der Querdehnungszahl des Betons betrachtet ; die physikalischen und mechanischen Deutungen der Quer dehnungszahl wurden untersucht und diskutiert.

Darstellung und Betrachtung der speziellen Literatur über die dyn- und stat. Querdehehnungszahl und die Auswertung anderer Literaturangagen (Quer-und Längsdehnung bei stat. sowie Resonanzfrequenz- und Schallgeschwindigkeitsmessungen bei dyn. Querdehnungszahl) sollten dazu dienen, die verschiedenen Eigenschaften der stat. und dyn. Querdehnungszahl zu beutreilen. Durch die statistische Auswertung war es möglich, einen überblick über die Streuung zu geben und statistische Rückschlüsse zu ziehen.

Für die stat. Querdehnungszhl konnten einige Abhängigketen (wie vom Volumenanteil des Zuschlags, Spannung, Alter usw.) der Querdehnungszahl geklärt oder zum Teil (wie die Querdehnungszhl des Zementsteins, Kriechen, zwei - und dreiachsige Beanspruchung, s. Tab. 11) geklärt werden.

Für die dyn. Querdehnungszahl war es ebenso möglich, ihre Abhängigkeit von verschiedenen EinfluBfaktoren zu klären (Tab. 14). Die Untereuchung hat gezeigt, daB die dyn. Querdehnungszahl, aufgrund von Schallaufzeitmessungen berechnet, niemals mit der dyn. Querdehnungszahl, berechnet aufgrund von Resonanzfrequenzmessun- und der stat. Querdehnungszahl, zu vergleihen ist. Die beiden dyn. Querdehnungszahlen besitzen einige gemeinsome Eigenschaften (wie EinfluB des Alters, des W/Z-Wertes, des Volumenanteils vom Zuschlag usw.) ; die dyn. Querdehnungezahl, berechnet aufgrund von



ENGINEERING



tanz wurde entwickelt, die selektiv die B-Rezeptoren erregt. Isoprenalin gilt heute als der beste Vasodiatator unter den Katecholaminen.

Isoprenalin ist der B-Rezeptorenstimulator der Experimentalpharmakologie. Er wird zur Pruefung, wenn eine Substanz auf ihre spezifische B-Rezeptorenblockade getestet werden soll, herangezogen.

Die B_1- und B_2-Rezeptoren :

Die Stimulierung von B-Rezeptoren durch Sympathomimetika zeighte, daB die Reaktionen der Organe und Organsysteme unterschiedich stark waren. AuBerdem werden mit den Kreislaufeffekte noch wichtige Stoffwechselvorgaenge wie Glykogenolyse, die als reine B-Wirkung in Herz-und Sklettmuskulatur beschrieben wird, in Gang gesetzt.

«Lands» und Mitarbeiter haben auBerdem eine positive Korrelation zwischen den Reakionsgruppen Lipolyse und Herzstimulierung einerseits, wie bei Bronchial - und GefaeBmuskeierschlaffung andererseits feststellen koennen. Nach diesen Gesichtspunkten wurden die B-Rezeptoren in B_1 — und B_2— Rezeptoren eingeteilt.

B_1 — Rezeptoren wurden als solche charakterisiert, die die kardiale Stimulierung sowie Lipolyse und Darmmuskel-relaxation, waehrend B_2-Rezeptoren Muskelrelaxation von BronchengefaeBen und Uterus sowie Glykogenolyse, vermitteln. Diese von LANDS und Mitarbeitern vorgeschlagene Differenzierung ist fuer die B-Rezeptorenstimulierung und erst recht fuer die spaeter zu besprechende B-Rezeptorenblockade von groeBerer praktischer Bedeutung.

Auch wenn keiner der besprochenen Rezeptoren optisch erfaBt werden konnte, so koennen wir sie trotzdem nach den Reaktione z.B. einer GefaeBmuskelzelle durch entsprechende Mimetika oder Lytika studieren und nach ihren Charakteristika differen zieren.

a — und B-Rezeptoren :

Man hatte die Beobachtung gemacht, daB die Wirkung eines sympathischen Nervenimpulses nicht voellig identisch mit der der Adrenalinwirkung war. Weitere Unterscuchhungen haben gezeigt, daB die Hormonausschuettung des Nebennierenmarkes bei koerperlichen und seelischen Belastungen (Stress) in ihrem Mischverhaelthis aus Adre nalin und Noradrenalin wie etwa 3 : 2 vorliegt und daher die Adrenalinwirkung ueberwiegt, waehrend bei der Abgabe der Wirkstoffe von sympathischen Nervenfasern zur Erregungsuebertragung auf die Erfolgsorgane das Mischverhaeltnis Noradrenalin zu Adrenalin wie etwa 9 : 1 Vorliegt und daher die kreislaufeffekte des Noradrenalins im Vordergrund stehen.

Weitere Unterschiede sind bekannt geworden, als man versuchte die exzitatorischen wie inotrope und chronotrope Wirkungen der Kaetcholamine auf das Herz sowie ihre inhibitorischen Wirkungen auf den Tonus der Bronchial - und Darmmuskulatur aufzuheben.

Sympatholytika wie Ergotamin, Tolazin und Phentolamin vermoegen die meisten exzitatorischen Wirkungen (die Erregung des Herzens z.B. nicht) der Katecholamine zu blockieren, die inhibitorischen Wirkungen wie die Erschalaffung der Bronchial-und Darmmuskel dagegen nicht.

Aus diesen Tatsachen hat AHLQUIST die Existenz zweier Rezeptorenarten geschlossen :

a — Rezeptoren, die durch Sympatholytika vom Typ (Ergotamin) blockiert werden ;

B — Rezeptoren, die nicht blockiert werden konnten.

Diese 1949 entstandene Differenzierung hat AnlaB zur Suche nach ihrer Bestaetigung gegeben. Die sympathomimetische substanzen wurden nach dem Rezeptor, mit dem sie reagieren, charakterisiert. So sprechen die a-Rezeptoren auf das fuer sie weitgehend spezifische Noradrenalin mit einer exzitatorischen Reaktion an. Sie werden von ihm sti m uliert, was ihm den Namen a-Stimulator gibt.

Adrenalin dagegen sti m uliert sowohl a- als auch B-Rezeptoren Der ueberwiegende Effekt haengt dann von der Mehrzahl der in dem betreffenden Organ vertretenden Rezeptorenart ab. Eine neuse Subs-

Lively sino-vagal reflex responses Presupposed a satisfactory depth of surgical anaesthesia.

Sino-vagal reflexes were reduced by insulin hypoglycaemia and this effect was shewn to be central rather than peripheral.

210 — **al-Kuwaity, Khalid Khalil**
Beta-Adrenolytische wirkungen und kreislaufeffekta der substanz Ko 1366. Westfalischen Wilhelms Universitat, 1972.
36 p. + 260 pp. 32 cm.

Die von AHLquist aufgestellte Hypothese hat sich als nutzvolle und anerkannte Theorie erwiessen. Sie geht von der Ueberlegung aus, daB irgendein molekularer Reaktionspartner vorhanden sein muB, damit eine Substanz ihre Wirkung in den Effektorzellen vollziehen kann. Welche Art der chemischen Bindungen diese Substanz mit dem Reakitionspartner (Rezeptor) eingeht, ist unbedeutend.

Der Rezeptor muB aber bestimmte Charakteristika besitzen, damit eine Substanz oder Substanzgruppe mit ihm eine chemische Bindung eingehen kann. Die physikochemische Aenderung des lokalen biologischen Geschehens am Reakitionsort ist im einzelnen nicht voellig geklaert. Es kommen hauptsaechlich Wasserstoffbrueckenbindung, van der Waalssche Kraefte, jonale Bindung und kovalente Bindung vor. Kennt man die Eigenschaften einer Substanz, die mit einem Rezeptor reagiert, so kann man diesen charakterisieren. Auf diese Weise hat man die Noradrenalinrezeptoren, Isoprenali Rezeptoren u.a.m. charakterisieren koennen. Man geht von der Ueberlegung aus, daB der Rezeptor der negative Abdruck der Substanz ist. Eine plastische Darstellung des Rezeptorbegriffes gibt Abbildung 1).

Abbildung 1) stellt den Rezeptorbegriff schematisch anhand einer Herzmuskelzelle dar. Wie aus der Abbildung hervorgeht, bilden die Rezeptoren die negativen Abdruecke sowohl der adrenergen Stimulatoren wie Adrenalin, Noradrenalin und Isoprenalin als auch der Blocker.

Dale experimentierte 1906 mit versdiedenen adrenergen stimulatoren und inhibitoren und Kam zum Ergabnis, daB es mindestens zwei Typen von adrenegen Rezeptoren gibt.

CARDIOLOGY

209 — **Kordy, Mahmoud Tahir.**
An Electroneurographic study of cardiac vagal replexes. University of London, 1973.
244 p. illus, plts., 90 ms.

The thesis describes the investigation of the electroneurogrophic activity of afferent vagal fibres from the heart and that of vegal efferent units supplying the heart in the cat and the dog.

Studies of the effects of increasing venous return produced results which were consonant with the proposition that reflex tachycardia is at least partly promoted by an increase in the activity of right atrial receptors.

The investigation of cardiac vagal efferent branches shewed that these all contained post-ganglionic sympathetic fibres and the resting activity of these branches usually featured sympathetic discharge rather than that of fibres which behaved physiologically like true cardiac vagal efferents. The use of trophenium and noradrenaline enabled the study of single cardiac vagal efferents. Conduction velocity measurements yielded results that indicated that these units were «B» preganglionic fibres.

Most cardiac vagal efferent studies were made on the cervical trunks in closed chest animals. The use of afferent stimuli applied to the superior laryngeal, sinus and aortic nerves in evoking reflex efferent impulse activity provided satisfactory identification of prospective cardiac efferent fibres and allowed the measurement of reflex times.

In dogs anaesthetized with morphine chloralose and urethane phasic cardiovagal activity was the rule and impulse discharge seemed to be responsible for the sinus arrhythmiawhich such animals displayed. Isolated carotid sinus pressure changes provided reflex cardiac vagal activity and the latency of this response was clearly related to the phase of respiration in which the stimulus was applied.

Chemoreceptor reflex bradycardia was strikingly increased during the reflex apnoea caused by superior laryngeal stimulation.

traction in a dose related fashion, in a muscle taken from rats in which the adrenergic nerve terminals were destroyed by pre-treatment with 6 OHDA.

10 The effect of bretylium on the anococcygeus muscle and its response to motor and inhibitory nerve stimulation was examined. Bretylium in a concentration of 10^{-6} M reduced the response to field stimulation of the motor adrenergic nerves. Higher concentrations of 10^{-5} M and more caused a rise in tone and a reversal of the response to field stimulation to inhibition. The rise in tone was abolished by phentolamine. Further increases in bretylum (10^{-4} M) had no effect on the inhibitory response. Bretylium (10^{-6} — 3×10^{-5} M) also potentiated the response to NA.

11) The interaction of bretylium with the indirect sympathomimetic drug amphetamine was investigated. Amphetamine reversed the blocking action of bretylium on the motor adrenergic response. Bretylium had little or no effect on response to amphetamine and tyramine.

and more. At these high concentrations, although depression was greater with low frequencies of stimulation, it was not confined to them and the response even at 10 Hz was reduced.

The depressant effect of morphine was not reversed by naloxone (10^{-5} — 10^{-4} M). Naloxone not only had no antagonistic effect but indeed intensified the depression produced by morphine, suggesting either that this action of morphine (and naloxone) is non-specific or that this an exceptional site in which naloxone is an agonist comparable with morphine at the morphine receptors.

Lack of morphine effect on the inhibitory response to field stimulation suggests the lack of morphine sensitive receptors controlling the release of the inhibitory transmitter.

6) TEA potentiated the motor response to field stimulation, but had little or no effect on the dose / response curve to NA, suggesting its potentiation of the response to field stimulation was due to an increase in the liberation of NA.

TEA also potentiated the inhibitory response to field stimulation at low concentrations, probably due to an increase in the release of the inhibitory transmitter. The increased liberation of NA and probably the inhibitory transmitter appeared not to be to an action on presynaptic chloinergic receptors, since atropine, hexamethonium and d-tubocurarine had no effect on the motor response potentiation induced by TEA.

7) TEA had no effect on the dose/response curve to tyramine, suggesting that NA release by a mechanism requiring neither axonal depolarisation nor the ion calcium is unaffected by TEA.

8) TEA depressed the postsynaphtic response of the anococcygeus muscle to carbachol and to methacholine due to an atropine-like action on the postsynaptic muscarinic receptors, effect not previously reported on mammalian preparations.

9) TEA at concentrations higher than 1 mM caused spontaneous activity and a rise in tone of the muscle. Part of the stimulant effect of TEA was a direct postsynaptic action on the muscle itself and part on increased spontaneous release of NA, since the response was partially depressed by phentolamine and since TEA could induce a con-

PGF_2 a had little or no effect on the motor responce to field stimulation but 10^{-6} — 10^{-5} M slightly potentiated the response to exogenous NA. This potentiation was not statistically significant.

3) PGE_1 and PGE_2 caused a depressant effect on the inhibitory response at high concentrations, probably due to their ability to raise muscle tone.

PGF_2 a potentiated the inhibitory response to field stimulation but this effect was not statistically significant.

4) Cholinergic receptor modulation :

ACh is known to influence transmitter output from adrenergic nerves, both through muscarinic receptors which inhibit release and nicotinic receptors which potentiate release. The muscarinic response is observsd with very low doses of ACh and is more likely therefore to be physiologically important than nicotinic response which requires concentrations unlikely ever to be present in the neighbourhood of adrenergic nerve terminals. The possible modulation of transmitter release by cholinergic receptors was studied by examining the action of carbachol on the response to motor adrenergic and inhibitory nerve stimulation.

Carbachol had no effect on the response to inhibitory nerve stimulation, suggesting the absence of cholinergic receptors modifying transmitter output in these nerves. It was more difficult to determine the effect of carbachol on the motor adrenergic nerves because of the powerful effect of carbachol itself on muscle tone, but throughout the concentrations tested, in the absence (10^{-9} — 10^{-6} M) and the presence of atropine (10^{-4} — 10^{-3} M) there no evidence of the block of adrenergic response reported elsewhere.

5) Morphine depressed the motor response of the anococcygeus muscle to field stimulation (single pulse, 0.1, 0.2, 0.5, 2 and 10 Hz), but had no significant effect on the response to NA (10^{-5} M). The effect was greatest at low frequencies of stimulation of 2 Hz and less. The concentration of morphine required to cause a statistically significant depression in the response, however, was high compared with previous reports. With one exception (2 Hz, 10^{-6} M). depression was observed only with concentrations of morphine of 10^{-5} M

skeletal muscle. On the other hand, a purified extract is devoid of pharmacological activity, apart from its ability to lower blood glucose concentrations.

208 — **Tilmisany, Abdul Karim.**
Studies on some pre-synoptically acting drugs on the anococcygeus muscle of the rat. University of Glasgow - Department of Pharmacology, 1976.
iv, 139 p. + Figures.

A variety of drugs are known to influence the release of neurotransmitter in both adrenergic and chlorinerigic nerves. Some of these act through receptors on the nerve terminals and among these are drugs normally produced in the body and which may, therefore, act as physiological regulators by negative feedback. Other drugs such as TEA influence release by modifying the efficacy of excitation-secretion coupling by an action on ion permeability. The experiments in this thesis were carried cut to determine which of these mechanisms was active in the rat anococcygeus muscle. This preparation contains conventional motor adrenergic nerves and an inhibitory innervation whose transmitter is at present unknown. The particular aim of the thesis was to analyse the effect on these motor and inhibitory nerves.

1) a Adrenergic feedback

The release of noradrenaline from adrenergic nerves in other organs is inhibited by the liberated NA itself attaching to a receptors on the nerve membrane and as a consequence reducing transmitter output. The importance of this mechanism in the anococcygeus was examined by studying the effect of oxymetazoline (10^{-12} — 10^{-10} M) on the response to motor nerve stimulation. Oxymetazoline was chosen as it is a powerful a agonist but is not subject to neuronal uptake. Oxymetazoline had no effect on the motor response to adrenergic nerve stimulation, suggesting that a receptor activated inhibition of transmitter output is relatively unimportant in this tissue.

2) PGE_1 and PGE_2 depressed the motor adrenergic response of the anococcygeus muscle to field stimulation with little or no effect on the respcnse to exogenous NA. This depressant effect appeared to be the result of reduction of release of NA.

The stability on storage at 5°C, 25°C and 30°C of sterilised solutions of cocaine, prepared by various methods and formulae, was compared with the stability predicted from the results of the accelerated tests.

207 — **Taha, Sadek A.**
Pharmacological studies on the leaves of Azadirachta Indica. Hypoglycaemia activity. University of Wales, 1973.
iv, 236 p. plates.

Leaves used in Saudi Arabia in the folk-lore treatment of diabetes mellitus, have been identified as the leaves of **Azadirachta indica** A. juss (syn. **Melia azadirachta** Linn.) A description of their morphological characteristics has been given, since they can readily be mistaken for **Melia azedarach**, a closely resembling member of the Meliaceae family. Aqueous extracts of the leaves produce marked hypoglycaemia in fasted rats when administered orally, intravenously and subcutaneously. This effect on blood glucose levels also occurs in the rabbit and guinea-pig. In addition, aqueous extracts exert a stabilizing influence on rat blood glucose levels which have been temporally elevated to diabetic levels. In a comparative study, a crude aqueous leaf extract has been demonstrated to be about one- half as potent as tolbutamide in reducing rat blood glucose concentrations. Various extraction processes have been performed on the leaves and a relatively pure extract, containing a major and minor component, has been obtained. The major component is considered to be the constituent responsible for hypoglycaemic activity.

Antidiabetic activity is dependent on the presence of functioning pancreatic cells, since leaf extracts do not produce hypoglycaemia in totally pancreatectomized rats, or animals made severely diabetic by alloxan administration. It therefore appears that the hypoglycaemic constituent in the leaf produces its effects through the release of insulin. This is glucose dependent, because mannoheptulose and--glucosamine both inhibit the ability of the constituent to antagonize glucose-induced hyperglycaemia.

A crude aqueous leaf extract possesses mild diuretic properties at hypoglycaemic doses. In addition, larger doses produce a non-specific inhibition of natural and induced tone in smooth, cardiac and

citral, citronellal, citronellol, geraniol and linalol ; 7 components in **S. sylvatica,** identified as : cineol, citral, citronellal, citronellol, eugenol, geraniol and linalool, and 5 components in **S. germanica** identified as : citral, citronellal, citronellol, geraniol and linalol. No oil was isolated from **S. palustrins.**

Phytochemical screening on the previously reported presence of sterols, flavonoids, tannins and cardiac glycoside yielded conflicting results, and these are reported in the discussion.

The pharmacological properties of the isolated alkaloids have been examined and the results revealed that they do not have strong anticholinesterase activity. They possibly cause release of ACh or some other biologically active substance.

206 — **Al-Shoure, Hasan I**
Studies on the stability of cocaine hydrochloride in aqueous solutions. Heriot-Watt University — Department of Pharmacy, 1976.
vi, 207 p.

A spectrophotometric method based upon the distribution coefficient of cocaine was developed for the determination of cocaine in the presence of its degradation products.

Cocaine was separated from its degradation products by extraction with ether. The ethereal extract was shaken with hydrochloric acid and determined by ultraviolet spectrophotometry.

The effects of pH on the rate of hydrolysis of cocaine in aqueous solutions were investigated, and the results were discussed in relation to the catalysis by hydrogen ions, hydroxide ions, solvolysis and general acid catalysis of the protonated form of the alkaloid. Ionic strength had a slight effect on the rate of hydrolysis of cocaine while the concentrations of the ingredients of various buffer solutions had a significant effect on the rate of hydrolysis of cocaine. The effects of temperature on the rate of hydrolysis of buffered solutions of cocaine were investigated by isothermal and non-isothermal accelerated stability tests. The ionization constant of cocaine was determined at various temperatures.

cular weight of saponin 2 was 1473.6 with the corresponding molecular formula of $C_{68}H_{112}O_{34}$.

205 — **Mossa, Jaber Salem.**
Pharmacognostical studies in the genus stachys. Liverpool Polytechnic - School of Pharmacy, 1976.
380 p. + Fig.

This work consists of anatomical and phytochemical investigations on four species of the genus **Stachys.** These species are S. **betonica,** S. **sylvatica,** S. **germanica** and S. **palustris.**

The anatomical part provides a detailed fully illustrated account of the macroscopical and microscopical structure of the leaves which can be used for authentication of the species. Up to this time, only general descriptions of the morphology have been available.

The detailed phytochemical work has been carried out to examine the alkaloids and volatile oils, the presence of which has previously been reported in S. **betonica** and S. **sylvatica** but not in S. **germanica** or S. **palustris.**

The isolation and identification of the alkaloidal constituents is based on thin layer and paper chromatographic analysis, melting points, elemental analysis, ultraviolet spectroscopy, infrared spectroscopy, mass spectroscopy and nuclear magnetic resonance spectroscopy.

Our investigations revealed the presence of stachydrine and betonicine in S. **betonica,** trigonelline and betonicine in S. **sylvatica**-and trigonelline in S. **germanica** and S. **palustris.** Trigonelline is reported in S. **germanica** and S.**palustris** for the first time. The total alkaloid content of each species was determined using the ammonium reineckate method.

Four alkaloids, stachydrine, betonicine, trigonelline and turicine and their derivatives have been synthesised and compared with the isolated alkaloids.

By means of thin layer and gas liquid chromatography, the essential oil has been shown to have at least 5 components in S. **betomica,**

of the defatted fresh leaves of **Agave pacifica,** family Amaryllidaceae, was found to possess anti-tumor activity. The activity was obtained in the 5 WM (Walker Carcinosarcoma 256 (intramuscular)) test system of the National Institutes of Health, Cancer Chemotherapy National Service Center.

Preliminary investigation of the methanol extract revealed the presence of a substantial amount of saponins. The saponins were extracted from the plant in a more direct manner using hot water. The concentrated hot water extract was exhaustively extracted with **n**-butanal and the extract was evaporated to dryness. Preliminary investigation of the **n**-butanol extract showed it to form a persistent foam upon shaking with water, to hemolyze the red blood cells, and to give a typical saponin absorption upon being subjected to infrared spectroscopy.

The **n**-butanol extract contained two saponins which were separated, in the acetate form, by means of dry column chromatography. The individual saponins were regenerated by the alkaline hydrolysis of their respective acetates .

Acid hydrolysis of the saponins afforded their respective aglycone and sugar moieties.

Based on evidence from thin-layer chromatography, infrared spectroscopy, melting point determinations, and mass spectrometry the aglycones of saponins 1 and 2 were identified as hecogenin and tigogenin, respectively.

The sugar moieties of both saponins were found by paper chromatography to consist of L-rhamnose, D-xylose, and D-glucose. Gas chromatography of trimethylsilyl ether derivatives of the saponins sugar moieties showed sugar moieties of saponins 1 and 2 to consist of L-rhamnose, D-xylose, and D-glucose in the ratio 2 : 1 : 4, and 3 : 1 : 3, respectively.

Elemental analyses indicated that saponin 1 contained one mole of hecogenin, two moels of L-rhamnose, one mole of D-xylose, and four moles of D-glucose. The molecular weight of saponin 1 was 1503.59 with the corresponding molecular formular of $C_{63}H_{110}O_{36}$. Saponin 2 contained one mole of tigogenin, three moles of L-rhamnose, one mole of D-xylose, and three moles of D-glucose. The mole-

PHARMACOLOGY & DRUGS

203 — Aqeel, Abdulrahman Mohamed.
The comparative effects of morphine and chlorpromazine on the acquisition of conditions avoidance response. The University of Arizona, 1974.
ix, 37 p.

The acute effects of morphine sulfate (0.25 to 24 mg/kg s.c.) and chlorpromazine hydrochloride (0.0625 to 4 mg/kg s.c.) on acquisition of conditioned avoidance response (CAR) in a two-way shuttlebox were studied in three experiments that represented three levels of difficulty. Relative difficulty of the three tasks was validated by the observation that control animals had progressively poorer rates of acquisition of CAR with successively more difficult tasks. Naïve rats were subjected to 60 massed trials, which constituted the acquisition session.

The results with morphine showed a biphasic response in all three experiments. Relatively speaking, low doses exerted no effect on acquisition, intermediate doses enhanced acquisition, and high doses disrupted acquisition of CAR. Increasing the task difficulty increased the doses of morphine required to enhance aquisition. Also, a dose that completely inhibited acquisition in a less difficult task enhanced acquisition in a more difficult task. The doses of morphine that enhanced acquisition also produced appreciable intertrial crossings.

Chlorpromazine, in all the doses used in the three experiments, significantly suppressed acquisition of CAR. These doses of CPZ appeared to suppress intertrial crossings. Generally, increasing the dosage of CPZ resulted in more suppression of acquisition.

204 — Jado, Ahmad Ismail
Potential anti-tumor agents from Agave Pacifica (Trelease) family amaryllidaceae. The University of Arizona, 1971.
50 p., illus., 28 cm.

In the course of a continuing search for new and more effective anti-tumor substances from the plant kingdom, the methanol extract

In the findings, in certain areas of the study, significant differences in the health condition of the children in the settled community on one hand, and the semi-settled and nomadic communities. on the other hand were detected. (No such differences were observed between the last two communitions).

The children in the settled community have lower prevalence of respiratory infection, eye disease and fever ; higher haemoglobin level and higher growth curve.

The people in the settled community were found to have better economical status, reflected in better housing and better nutrition for the family and the children.

The health center which provide its services mainly to the settled community seems to play a lesser role in difference in children's health than the economical and nutritional factors. The health services are prodominantly curative.

Essentially no differences in the health knowledge and attitudes of people were found in the three communities.

PUBLIC HEALTH

202 — Sebai, Zohair Ahmed
The Health of the Bedouin in a changing Arabia, Johns Hopkins University, 1969 .
334 p.

Settlement of Boduins is a growing problem in Saudi Arabia. The prolonged drought and rapid industrialization of the nation, are main factors leading to settlement. The government is accolorating the process. There is no data about health conditions of the nozzdio and settling Bedouins to permit satisfactory health planning for settlement.

The objective of the study were : to assess the norbidity and mortality children 0-4 years old in three communities in Saudi Arabia-settled, semi-settled and momadic ; and to study the related sceio-economic and environmental factors in the three communities.

The study was conducted in Wadi Turnba, a valley in west Saudi Arabia, inhabited by the Bugum Tribe (population 8-10 thousand). Forty percent of the tribe are nomads. The other 60% are either settled or sami-cettled.

A total of 314 households were selected for the study in the three communities : settled - 87 households, settled - 121 households, and nomadic - 106 households.

Interviews, formal and informal, were held with the heads of the households and their wives to cover areas of demography, history of morbidity and mortality of children, nutrition, socio-economic and environmental condition, and health knowledge, attitude and practices.

Clinical, anthropratric and laboratary examinations were given to the children 0-4 years old in the selected households.

A medium containing a sugar, hydrolyzed casein, adensine, guanosine, uridine, and cytidylic acid plus a buffer, vitamins and minerals supported growth of all the cultures tested and appeared to be useful for propagation of lactic streptococci.

Adenosine monophosphate, galactose, glucose, lactase and pyruvate added to milk increased the rates of acid production with the responses in the order listed. Rates of acid production by lactic streptococci can be increased greatly by using a continuous flow apparatus selective for rapid reproduction. Mutants with high rates of acid production can be developed by treatment of the culture cells with a mutagen (NTG). There was a general relationship between the rates of acid production and the amount of B-galactosidase produced by the cultures.

FOOD SCIENCE & NUTRITION

201 — **Qutub, Ahmed Hassan.**
The Influence of nutritional factors and of mutations on the rates of acid production by lactic streptococci. Oklahoma state University, 1970.
viii, 80 p.

Scope of Study : Pure cultures of**Streptococcus lactis** and of **Streptococcus cremoris** (lactic streptococci) were studies with the principal objective of increasing the rates of acid production by these organisms. Twenty-five cultures isolated from commercial lactic cultures were used. In the development of a chemically defined medium for studying these organisms 20 amino acids, 3 nucleosides, one nucleotide, 2 nucleic acid bases, ammonium sulfate, and urea were tested for possible use as nitrogen sources. Seven trials were conducted in which the sources of nitrogen were used in various combinations and levels of concentration. Two trials were conducted to determine the mineral requirements of these organisms. Five trials were conducted to determine the influence on acid production of adding to milk adenosine monophosphate, galactose, glucose, pyruvate and lactase. Nine trials were conducted with a continuous flow apparatus (chemostat) in attempts to select mutants capable of high rates of acid production. Three trials were conducted to induce mutation by use of a mutagen, N-methyl-N-nitro-N-nitrosoguanidine (NTG).

Findings and Conclusions : A chemically defined medium composed of glucose, 11 amino acids, 3 nucleosides, a nucleotide and mixtures of vitamins and of minerals proved adequate for the growth of the nine cultures tested. When the base medium without minerals was used to determine the influence of added minerals, it appeared that traces of minerals in the ingredients of the medium were in sufficient quantity to render it ineffective for this purpose.

ageal angle and the crura of the diaphragm which may act as a pinch cock, but will deflect the oesophagus in inspiration.

200 — **Nouh, Adnan S.**
An automated feedback blood-gas control system carnegie-Mellon University, 1973.
vii, 168 p. fig.

An automated feedback blood-gas control system for artificial ventilation is developed. It has these main features : 1) Ventilation is controlled by monitoring oxygen and carbon dioxide tensions in the arterial blood of the patient, and then adjusting accordingly the input volume fraction concentrations of oxygen and carbon dioxide in inspired gas ; 2) The oxygen and carbon dioxide volume fraction concentrations are computed to minimize a quadratic functional in the error between oxygen and carbon dioxide tensions and their normal values ; 3) The computed control is derived for a system model linearized about the normal levels ; 4) An alarm system is attached to the ventilatory system which gives appropriate alarms when preset limits are exceeded. The feedback blood control system consists of three main parts : 1) Measurement stsyem, 2) Controller, 3) Delivery system.

To illustrate the design of the system, two cases were simulated, one for patient with hypocarbia and the second for patient with hypoxemia. It was found that controlling oxygen and carbon dioxide tensions by regulating the oxygen and carbon dioxide volume fraction concentrations in inspired gas prevents hypocarbia and oxygen toxicity. The feedback blood-gas control system is expected to be useful for the control of ventilation of patients during surgery and patients with respiratory insufficiency.

In addition, iterative, nonlinear least squares parameter estimation is applied to estimate the physiological parameters of the respiratory system.

HUMAN PHYSIOLOGY

199 — **Fatani, Jamal.**
Neuromuscular studies of the gastro-oesophageal junction.
University of London, 1971.
230 p., 38 plates., 30 cm.

Literature concerning the structure, histochemistry, function and pharmacological reactions of the gastro-oesophageal junction in man and animals has been reviewed and discussed. Since electronmicroscopic studies are lacking those literature related to the muscle of the other parts of the gastro-intestinal tract has been reviewed.

Twenty-seven adults and 39 human foetuses ; a single dog and rabbit ; 19 cats, 54 rats ; 2 mice and 2 hamsters were examined here. Four groups of observations are reported. The first deals with gross dissection, and general histology of the transitional zone ; the second and third with the histology and histochemistry of innervation respectively and the fourth is an incomplete preliminary report of electronmicroscopy. The gross and histological findings support the majority of authors who reported no anatomical sphinoter in man, dog and cat. It is concluded that some individual variation occurs within species. The presence of a sphincter of striated muscle was confirmed in rabbit, rat, mouse and hamster and its possible significance was discussed. Longitudinal oesophageal mucosal folds were present invariably in man, but not in animals. Transverse mucosal folds at the gastro-oesophageal junction were variable in man and cat and present in the single dog.

As stated by Lendrum (1937), elastic tissue does not increase in the junctional zone. Teased and whole mount preparations of submucosal and mesenteric nerve plexuses did not show regional histological specialisation in the area of functional narrowing. The hypothesis that neurological specialisation may account for this narrowing cannot be supported or denied because further histochemical and electronmicroscopic studies are required. Variable factors which may be involved together in maintaining functional sphincter in man are longitudinal oesophageal folds, flaps of gastric mucosa, gastro-oesph-

für alle Beteiligten leichter, wenn die Verneinung der Appendektomie unittelbar wor und nicht erst Tage nach der stationären Aufnahme getroffen wird. Wir haben die Frequenz der Appendektomie von 1969 auf 1975 successive von 411 auf 200, d.h. auf die Hälfte pro anno gesenkt. Das Gros der derart Ausgeschiedenen betrifft mit 52% Frauen und Mädchen im 2. und 3. Dezennium.

In der überwiegenden Mehrzahl ist der Tod nicht Folge der Appendektomie — hier irrt PFLANZ — sondern der destruktiven Appendicitis, die die Kranken bereits in die Klinik mitbringen. Die Haupttodesursache ist die Perforationsperitonitis. Ärztlich lässt sich die Letaalität nur noch sehr bedingt unter den Satz von 0.43% senken, da der entscheidende Zeitverzug auch von den Kranken verschuldet wird.

des Erlanger Krankengutes mit den Feststellungen und Meinungen anderer Autoren verglichen.

198 — **Al-Suleimani, Saleh**
Appendicitis ; diagnose, operation letalitat, Rheinischen Friedrich-Wilhelms-Universitat, 1977.
42 p.

Das Hauptproblem der Appendicitis bleibt die Diagnose. Daran hat sich in den letzten Jahrzehnten nichts geändert. Die Operationsindikation verlangt eine gründliche Untersuchung in systematischer Reihenfolge mit und ohne Ablenkung, immer die digital-rektale, gegebenenfalls die gynäkologische Kontrolle. Das alles braucht Zeit : mindestens 15 Minuten. Die Untersuchung stützt sich auf die 5 Sinne, die Diagnose auf die ärztliche Erfahrung, die Symptome bewerten zu können. Ausser Thermometer und einfachen Labormethoden ist der Untersucher ganz auf sich selbst gestellt. Apparative Hilfen gibt es nicht. Zumindest bei Frauen und Mädchen im 2. Lebensjahrzehnt wird die Diagnose «Appendicitis» häusärztlich zu häufig gestellt.

Es ist falsch, in einem akuten Krankheitsstadium oder nicht zu klärendem Zweifelsfall die Appendktomie zu unterlassen oder zu verzögern, Umgekehrt ist die Indikation in praeventiver Grosszügigkeit nicht zu vertrten. Einerseits sind tödliche Ausgänge bei Entfernung eines nicht entzündlich veränderten Wurmfortsatzes bekannt, andererseits gibt es den appendektomiebedingten Früh— und Spätileus mit letalem Ausgang und schliesslich kann man durch eine noch so grosse Appendektomierate bei Jugendlichen die gefährlichen formen der Krankheit in späterem Alter nicht aus der Welt schaffen. Eine generelle Operationsprophylaxe ist nicht denkbar.

Wir handhaben die Operationsindikation streng, wie auch BIRCHER, STORER, VERDA und PLATT gesehen haben, dass die Einschränkung der Operationshäufigkeit ohen Gefahren vertretbar ist. Als Filter nehmen wir die fachchirurgische Überprüfung der Zuweisungsdiagnose an der Kliniktür (IMDAHL, AL-SULEIMANI). Es ist

In dem Kapitel über die Theorien zur Ätiologie der Handdeformitäten wurde auf die alte und neue Auffassung eingegangen. Die Auffassungen von WIEDEMANN sowie COTTA, JAGER, WITT und BUNNELL wurden vorgestellt. Auf die Ursachen der Entstehung der Mi ß bildung wurde eingegangen. Dann wurden die Fehlbildungen nach ihrem zeitlichen Auftreten aufgeführt.

Bei der Einteilung der Handdeformitäten wurde auf die Vielfalt derselben und ihren prozentualen Anteil an den allgemeinen Fehlbildungen hingewiesen. Die Einteilungsschemen von JAGER, BUNNELL und PATTERSON wurden vorgestellt.

Bei der Auswertung des Krankengutes der handchirurgischen Abteilung der chirurgischen Klinik Erlangen der Jahre 1968 bis 1971 wurde erwähnt, da ß in dieser Klinik in vier Jahren 105 532 Patienten behandelt warden sind. Davon waren 0,04% Handfehlbildungen. Die Zahl der Patienten der handchirurgischen Abteilung selbst belief sich auf 11 388, wovon 1 324 stationär und 10 064 ambulant behandelt wurden. Die Zahl der Kinder mit Handfehlbildungen war 46 mit 48 Mi - blidungen an 71 Händen unter Beteiligung von 134 Fingern. Das Alter der Kinder bei der operativen Korrektur wurde graphisch dargestellt. Eine Tabelle gab anschlie ßend einen ausführlichen Überblick.

Bei der Besprechung der Deformitäten im einzelnen wurde folgende Feststellung gemacht :

1. Die Fehlbildung der oberen Extremitäten tritt umso häufiger auf, je mehr distal sie gelegen ist,
2. Sie tritt umso häufiger auf, je geringfügiger sie ist,
3. Sie kann beide Hände betreffen,
4. An einer Hand können mehr als eine Mi ßbildung entstehen,
5. Sie kann mit anderen Mi ß bildungen am Körper vergesellschaftet sein.

Die Besprechung wurde nach dem Schema von PATTERSON vorgenommen. In der Diskussion wurden die Ergebnisse der Auswertung

mu β, werden in ihrer Heimat mit einer Fülle von Fragen überschütet: «Du machst also eine wissenschaftiliche Arbeit» — so sagt man zu mir — «über Herzchirurgie ? über Chemotherapeutika ? oder über Chromosomenanomalien ?» Und wenn ich abwehrend den Kopf schüttle und auf Rhases, auf die arabische Heilkunde des 9. Jhs. hinweise, wird mir geantwortet : «Wie kannst du dich nur mit solch altem Trödel befassen.»

Derartige Gesprache sind charakteristiscn ; sie werren ein kennzeichnendes Licht auf den Saudiarabischen Geschichtsunterricht, für den Gegenwartisfragen ausschlaggebend sind, und der vielfach sich in Genealogien regierender Fürstenhäuser erschöpft. Wissenschaftsgeschichte ist ihm unbekannt, und von der gro en Zeit arabischer Medizin wissen die Lehrer ebensowenig wie die Schüler horen.

Es wäre unsinning, zu glauben, da βeine Dissertation wie die menie in der Lage wäre, da Abhilfe zu schaffen, noch dazu, wo nur das kurze Resümee verstanden wird. Aber vielleicht geinght es ihr doch, dazu beizutragen, da βallmählich eine Umorientierung erfolgt und daβ die historische Forschung sich aus allzu starker Abhängigkeit von Gegenwartsproblemen befreit.

197 — **Shawan, Saad**
Angeborene deformitaten der kindlichen hand.
Friedrich-Alexander-Universitat, 1974.
40 p.

In der Einleitung wurde auf die Wichtigkeit der Hand und die Vielfalt ihrer Fertigkeiten hingewiesen. Es wurde daraus resutiert, da βdie Mi βbildung dieses wichtigen Organs von gro βer Bedeutung ist. Auf die Erfolge der Handchirurgie in den lezten Jahren wurde eingegangen.

Schlie βlich wurde auf die Wichtigkeit des Operationsalters hingewiesen. Zur Anatomie der Hand wurde u. a. auf die besondere Stellung des Daumens und die nervale Versorgung der Hand eingegangen.

Bei der Besprechung der Embryologie der Hand wurde auf die Embryonalzeit, in der sich die Extremitäten entwickeln, eingegangen, und zwar so, da βdie Entstehung der Deformitäten verständlich wird.

Mehr oder minder Protaner— und Dautaner—Typ waren 6,5% der Patienten. Bei 387 Männern mit anderen Krankheiten als Leberzirrhose waren 23 farbenblind, während bei 63 Zirrhotikern nicht weniger als 21 als farbenblind befunden wurden.

Von 14 Frauen mit Leberzirrhose waren 4 farbenblind. Auch in den Arbeiten, welche in Seattle (2) erschienen sind, um dieser Beziehung nachzuforschen, haben die Autoren 11 der 24 untersuchten Zirrhotiker, also 46%, und 9 der 22 untersuchten Frauen, also 41% als fsrbenuntüchtig befunden.

Diese Nachforschung enthüllt wie die erste eine Assoziation zwischen Farbenuntüchtigkait und der Laennec's Zirrhose, jedoch unterstütsen die gültigen Gegebenheiten nicht die Vermutung von CRUZ—COKE, daβ x—gebundene Chromosmen in bezug auf Farbenuntüchtigkeit entweder für die Alkoholvergiftung oder für die Zirrhose der Labor empfänglich sind.

Diase überraschenden Ergebnisse haben uns veranlaβt, die gefundenen Resultate zu prüfen. Wir haben unsere Untersuchungen suf Patienten beschränkt, die uns als Zirrhotiker schon bekannt sind und bei denen die Zirrhose klinisch, labordiagnostisch, laparoskopisch und hiatologish gesichert war.

Bei der Untersuchung auf Farbsinnstörungen wurds beachtet, da β die Patienten in ausgaruhtem und nicht übermüdetem Zustand waren. Wir fanden bei 100 Zirrhotikern nur 6% farbenuntüchtiga, im Gegensatz zu den obengenannten Arbeiten. Unsere Ergebnisse bestätigen nicht, da β ein Zusammenhang zwischen Leberzirrhose und Farbenblindheit besteht.

196 — Mokhtar, Ahmed Mohammed
Rhases Contra galenum ; die galenkritik in den ersten zwanzig buchem des «continens» von Ibn ar-Razi. Rheinischen Friedrich-Wilhelms-Universitat, 1969.
101 p. + 6 in Arabic.

Saudiarabische Absolventen des Medizinstudiums in der Bundesrepublik pflegen nicht zu promovieren. Das ist eine Regel, die — wie alle Regeln-ihre Ausnahme kennt. Und gerade die Ausnahmen, zu denen ich mich nach Niederschrift der kleinen Rhases-Studie rechnen

Die Untersuchungen wurden an Bastardhunden beiderlei Geschlechts durchgeführt. Die Kontrollgruppe bestand aus 7 Hunden, die Experimentgruppe aus 10 llunden. Der Verschluβikterus in der Experimentgruppe wurde durch Choledochusligatur hervorgerufen. 6 Tage vor der Choledochusligatur sowie 6 Tage nach der Choledochusligatur wurden Clearance — Untersuchungen vorgenommen. Am 15. Tag des Verschluβikterus wurde ein normataner hämorrhagischer Schock verursacht. Die Untersuchungen erbrachten folgende Ergebnisse :

Durch Blutentzug von 30,74 ml/kg Körpergewicht wurde der systolische Druck in der Kontrollgruppe von 128 auf 46 mm Ilg gesenkt. In der Verschluβikterusgruppe füfrte der Entzug von 25,2 ml/kg Körpergewicht zu einem Abfall des systolischen Blutdruckes von 103 mm llg auf 47 mm llg. Während der 90 min andauernden Phase der Oligämie stieg der Blutdruck kontinuierlich wieder an und erreichte die Ausgangswerte nach Retransfusion. Alle Hunde der Ikterusgruppe verstarben innerhalb von 30 min bis 124 Std. nach Beginn der Oligämiezeit. Als Todesurache müssen Myocardschäden angenommen werden.

Clearance — Untersuchungen am 6 - Tag nach dem Schock zeigten in der Kontrollgruppe keine Veränderungen von Urinflow, glomeruläre und tubuläre Funktion genenüber dem Kontrollwert vor dem Schock. Während der Oligämiezeit und den ersten 90 — 120 min nach der Retransfusion blieben die Tiere beider Gruppen anurisch, danach setzte eine normale Urinausscheidung ein. Der Serumkreatininanstieg war nur kurzzeitig zu beobachten. Mikroskopisch zeigten sich bei den Hunden mit Verschluβikterus nach normotonem hämorrhagischen Schock ausgedehnte Tubulusschäden. Die Entwicklung eines Nierenfunktionsschadens blieb offensichtlich bei nur kurzfristiger Uberlebensdauer aus.

195 — **Al-Khuwaitir, Salih**
Farbensehen und leberzirrhose.
Georg-August Universitat, 1967.
19 p.

In einem chilenischen Kraukenhaus hat CRUZ—COKE 900 Patienten (450 Frauen und 450 Männer) mit verschiedenen Krankheiten auf ihro Farbenuntüchtigkeit untersucht.

193 — **Kattan, Ibrahim**
Natriumarme Peritonealdialyseislosungen bei chronischer niereninsuffizienz. Universitat zu Freiburg, 1970.
68 p

1. Durch Dialyse gegen natrimumarme Peritenealdialyse - Lösungen wird in indirekter Abhängigkeit der Natriunkonzentration der verwendeten Lösungen **eine Senkung des Serumnatruims** erzielt.

2. Die **Natriumelimination** mit dem Peritonealdialysat nimmt in indirekter Abhängigkeit der Natriumkonzentration der verwendeten Lösungen zu.

3. Das **austauschbare Natrium** chronisch urämischer Patienten ist im Vergleich zu Normalpersonen **signifikant** erhöht.

4. **Durch Peritenealdialyse** gegen natriumarme Parfusionsiösug wirdreine **Verminderung des austauschbaren Natriums** erceich.

5. **Im Kurzzeitversuch** wurde bei Anwerdung von natriumarmen Peritonealdialyselösungen **keine Blutdrucksenkung** beobachtet.

6. **Natriumarme Peritonealdialyselösungen** mit einer Natriumkonzentration von 125 - 130 mval/L erwissen sich als **ausreichend wirksam und klimich mut vertrulich.**

194 — **Khayat, Hassan**
Der komplette extrahepatische verschlussiketerus des hundes; beeinflussung der nierenfunktion durch normotonen hamorrhagischen schock. Chirurgischen Universitatsklinik, 1977.
54 p.

In der Frage nach causalpathogenetischen Beziehungen zwischen Lebererkrankungen und Nierenversagen bzw. Nierenfunktionsstörungen hat sich in den letzten Jahren mehr und mher die Meinung herauskristallisiert, die Nierenfunktionsstörung sei funktioneller Genese. In der vorliegenden Arbeit galt es zu prüfen, ob bei einer kurzzeitigen llypotension durch Blutentzug bei bestehendem Verschlβikterus eine Nierenfunktionsstörung ausgelüst wird.

MEDICAL SCIENCE — GENERAL

192 — **Abueish, Abdulrahman**
Blutverlust und Blutersatz bei operativen Eingriffen ohne Beruck-sichtigung der Gabe von plasmaexpandern. Universitat des Saarlandes, 1972.
77 p.

Bei den Angaben der Durchschnittswerte ist ein weiterer Faktor zu berücksichtigen, der die Werte bei manchen Operationsarten verfälscht. Es sind dies die Operationen mit Zwischenfällen, die sich durch extrem hobe Blutverluste auszeichnen. Besonders wirkt sich das bei Operationsarten aus, die nicht so häufig durchgeführt werden. In der Urologie z.B. betrug bei einer der 15 ausgewerteten Blasenresektionen der Bluverlust 12 000 ml. Dadurch stieg der durchschnittliche Blutverlust, der ohne diese Operation etwa 1000 ml betragen hätte, auf 1 778 ml und entspricht dadurch nicht mehr dem in der Praxis wirklich gegebenen Durchschnitt.

V. Zusammenfassung

Im Institut für Anaesthesie der Medizinischen Fakultät der Universität des Saarlandes in Homburg wurden 12 500 Anaesthesieprotokolle verschiedener Kliniken des Jahres 1970 ausgewertet. An Hand der beiden Daten «Blutverlust und Konservenzahl» wurde (unter anderem) festgestellt, ob bei den verschiedenen Operationsarten in den hiesigen Kliniken der Blutverlust mit genügenden Bluttransfusionen, ohne Berücksichtigung der Gabe von Plasmaexpandern, ersetzt wurde oder nicht.

Dabei sind wir zu diesen Schlu β folgerungen gekommen :

1. Blutverluste über 500 ml geben dem Anaesthesisten des hiesgen Instituts im allgemeinen Anla β zu Bluttransfusionen.

2. Bei den Transfusionen richtet sich der Anaesthesist nicht nur nach dem gemessenen und geschäizten Blutverlust, sondern der kilnische Zustand des Patienten wird mitbeachtet.



MEDICAL SCIENCES



(5-50 ppm and 7-65 ppm respectively). Treatments with sublethal concentrations of Undene increased the mortality of larvae and stimulated the oviposition rate of females, during the first 3-4 weeks after emergence, but decreased their longevity so that the total fecundity was not affected. Fungicidal sprays had no effect using Captan but gave partial or satisfactory control using Benlate or Crotothane respectively.

The contribution of thrips to pest problems in glasshouses where integrated control programmes are being undertaken is discussed. As no biological agents have been discovered, chemical control must be compatible with other integrated programmes. Undene offers such a method as it is systemic and effective at very low dosages.

dynamics and the behaviour of the sugar-best thrips, **Hercinothrips femoralis** (Reuter) have been studied particularly in relation to host leaf age and temperature. Although the thrips is shown to prefer sugar beet the host plant used throughout has been dwarf french bean as the former plant is not suited to the glasshouse.

The insect is briefly described and short accounts are given of the activities of adults, development of immature stages and the behaviour of various stages. Observations of the culture indicated that younger parts of the host are favoured for colonization by the thrips. The observed mode of reproduction by females was mainly parthenogenetic, presumably because males occurred only in very small proportions.

The females lived for a long period (up to 5 months) and laid eggs at a higher rate during the first half of their life than they did during the second ; the rate of egg production being affected by temperature, leaf age and surface. A positive linear relation was established between light intensity and the rate of oviposition and a negative relation between population density and rate of egg production. The duration of the immature stages and the longevity of the adults were prolonged at the lower temperature, but neither was influenced significantly by the age of leaf. The hatchability of eggs is high (86-90%), though influenced by temperature. The pupation of the larvae was found to take place on the host or in soil, depending on the intensity of light and the species of the host plant ; the emergence success being affected by the site of pupation and temperature. The mortality rate of the immature stages, especially the larvae and pupae, was greater than that of the adults ; more particularly at 22°C. The effect of leaf age on the mortality of various stages is negligible.

Life-fecundity tables were constructed for a better understanding of the population dynamics of the thrips. They were used to estimate the parameters R_0 and r, both of which were influenced by temperature and leaf age. Computer models, used to predict methods of control, have suggested that partial sterilization of the females is an ineffectual way while 85% imposed mortality is effective. The latter method was tested in insecticidal treatments with Disyston and Undene. The test proved the former compound as non effective and Undene as very toxic to thrips ; its $L.C_{50}$ and $L.C_{85}$ being very low

190 — **Al Kalefa, Mohamad Saleh**
Studies on reproduction in the Coleoptera. University of Wales, 1977.
260 p.

The structure and functions of the female reproductive system of Sitophilus granarius was investigated and also a comparative study of oögenesis in the acrotrophic ovarioles of **S. granarius** with that of the polytrophic ovarioles of a carabid **Aepopsis robinii.** Oögenesis is divided into arbitrary stages distinguishable with the light microscope, the fine structural changes during egg development are described with particular emphasis on the oöcyte periphery.

With the termination of yolk synthesis the vitelline membrane is laid down at the oöcyte surface, the follicle cells contributing towards its formation. The vitelline membrane of **S. granarius** consists of two layers but in **A. robinii** it is a single layer interrupted by numerous channels.

There is a significantly higher oviposition rate of mated compared with virgin females of **S. granarius.**

S. granarius is able to resorb its terminal developing egg under conditions of starvation and with further starvation some of the penultimate ones also. The effect of age on the onset of resorption was investigated.

The effect of age and starvation on the ultra-structure of the reproductive system and fat body of **S. granarius** were investigated. Ageing causes extensive changes in the structure of cell organelles in some of the oviducal cells and fat body cells. Because of the unusual environment in which it lives the life table and environmental adaptations were investigated.

191 — **Takrony, Mohammed Omar.**
Bionomics and control of the sugarbeet thrips Hercinothrips femoralis (Reuter). The University of Reading — Department of Zoology, 1973.
Vi 168 p. + Fig. 30 mc.

The reproductive performance, the life history, the population



ENTOMOLOGY

deeply staining basal gland cells. A notably clear demonstration of the phasic activities of the vacuolated cells is reported.

3. Amoebocytes are of two main types, small cells of unknown origin, which are widely distributed in the gut wall, and larger cells, confined to the digestive gland and stomach that arise by abstriction from the tips of the vacuolated cells. Their functions in ingestion, digestion and absorption have been shown.

4. The distribution of carbohydrate, protein (including enzymes), lipid and pigment in the gut wall is described.

5. The food, methods of feeding and gut contents are described, and the significance of burrowing movements and water currents generated in the mantle cavity is discussed in relation to feeding processes.

6. Site of absorption and storage were revealed by feeding experiments.

7. Evidence concerning extracellular and intracellular digestion is present. The digestive gland possesses the ability to phagocytose fine particles, to digest them intracellularly and to secrete enzymes and mucosubstances.

8. On the basis of its alimentary organisation, the investigation indicates that **Dentalium entalis** is neither primitive nor advanced but occupies an intermediate position among molluscs.

cells, and gland cells secreting simple acid mucopolysaccuharides. The gland cells lie in the epidermis. Sustentacular epithelial cells are absent and a large number of spindle cells replace them.

The intratentacular space possesses three types of muscles similar in location, function and structure to the muscles of the previously mentioned species. Three types of connective tissue cells were found in the tentacles of **Viviparus viviparus** one of which is a spongy connective tissue cell. The tentacular nerve does not branch into major branches as in the tentacles of **Hydrobia ulvae** and **Odostomia unidentata**, but into minor branches.

Only the right tentacle of male **Viviparus viviparus** possesses a vas deferens, the wall of which forms a prostate gland. The prostate gland possesses two types of cells : ciliated cells and gland cells secreting complex sulphated mucopolysaccharides. The prostate gland and the vas deferens are surrounded by a thick layer of circular and longitudinal muscles.

189 — **Taib, Noory T.**
Antomy, histology and histochemistry of the alimentary canal of Dentalium entalis L. with some observations on living animals. Glasgow University, 1976.
129 p.

1. The anatomy and histology of the alimentary canal of **Dantalium entalis** L. are described.

2. The following regions are distinguished in the gut : proboscis, oesophagus, oesophageal pouches, stomach caecum, digestive gland, intestine and rectum. The oesophagus is sub-divided into two histochemically distinct regions and its pouches into three regions distinct histologically and histochemically. The intestine is also sub-divided into two regions distinct histologically and histochemically. The buccal mass carries a large radula. The stomach is extended into a small caecum and carries a small (? vestigeal) gastric shield. The proboscis, oesophagus (and its pouches) stomach and the intestine are lined by ciliated cells supplemented by unicellular mucous glands. The caeum is lined by ciliated cells and gland cells of unknown function. The digestive gland is lined by highly vacuolated digestive and absorptive cells and

188 — **Eltaher, Hassan Haussni.**
Comparative anatomical and histological studies on the tentacles of Odostomia Unidentata (Montagu) Hydrobia ulvae (Pennant) and viviparus viviparus (L.). The University of Reading - Department of Zoology, ND.
Several pages. + Fig.

The tentacles of a gastropod are important sensory organs, their main function being to test the surrounding environment. The tentacles of **Odostomia unidentata** are ear-shaped. Their epidermis possesses mobile and immobile cilia as well as five types of epithelial cells ciliated and unciliated cells, sensory cells, sustentacular cells and spindle cells. There is only one type of subepithelial gland cell, secreting either neutral mucopolysaccharides or mucoproteins. The internal part of the tentacle contains three types of muscle, longitudinal, circular and transverse. The tentacular nerve has three central branches. two branches laterally and one branch medially. There are five types of connective tissue cells irregularly distributed in the tentacles.

The tentacles of **Hydrobia ulvae** are thread like ; their epidermis possesses mobile and immobile cilia as well as six types of epithelial cells : ciliated and unciliated cells, sensory cells, sustentacular cells, spindle cells and gland cells which secrete mucoproteins. The gland cells lie in the epidermis. Internally the tentacle contains three types of muscles similar in location, function and structure to the muscles present in **Odostomia unidentata.** The tentacular nerve has only two branches of which one extends dorsally and the second extends **ventrally.**

Four types of connective tissue cells were found in the tentacles of **Hydrobia ulvae** of which one (spongy connective tissue cell) does not occur in the tentacles of **Odostomia unidentata.** A unique modification has taken place only in the right tentacle of male **Viviparus viviparus** in which the vas deferens extends through the right tentacle adding to its sensory function the extra function of acting as penis.

The tentacles of **Viviparus vivipaurs** possess only mobile cilia. The epidermis of **Viviparus viviparus** (male and female) possesses five types of cells : ciliated and unciliated cells, sensory cells, spindle

dium. Ganglionic extirpation had no significant effect on blood K + levels. It seems unlikely therefore, that the neurosecretory cells in these ganglia play any part in K + regulation in the blood of **L. littorea.**

6. The blood volume of L. littorea, 49.87% wt. weight in 100% sea water, was found to decrease significantly when animals were placed in 25% sea water. This decrease was not affected by ganglion extirpation and accordingly it was concluded that blood volume was not under neurosecretory control.

7. Muscle Na + and K + levels were measured under a range of experimental conditions involving ganglionic extirpation and also variations of concentration of external medium at 100% and 25% sea water. The levels found were compatible with those of previous workers with Na + concentrations very much lower than in the blood, and with the K + concentrations very much higher. In decreasing external concentrations, the levels of No + and K + in the muscle cells decreased significantly. Removal of the left and right pleuraland the left cerebral ganglia had no effect on Na + and K + levels and so it seems unlikely that the neurosecretory cells in these ganglia play any part in the regulation of these ions in the cells.

8. When placed in 25% sea water, there was a significant decrease in the extracellular (inulin) space in muscle from the 10.11% levels in 100% sea water down to 8.97%. At the same time cellular water increased significantly, from the 76.72 in 100% sea water to 84.85% in 25 sea water .

Neither of these parameters was affected by removal of the left and right pleural or left cerebral ganglia and are not, therefore, under the control of the neurosecretory cells in these ganglia. The increase in cellular water only partially accounts for the decrease in blood volume in 25% sea water. When placed in 25% sea water **L. littorea** loses water to the external medium in an attempt to maintain the hyperosmoticity of the blood.

187 — **Nazer, Ibrahim O.**
Studies on neurosecretory and osmoregulatory activity in the intertidal mollusc, Littorina Littorca (L.) (gastropoda, pros-obrcnchia). The University of Sheffield, 1973.
iv, 220 p. + fig.

1. Specimens of **Littorina littorea** (L.) were collected from Robin Hood's Bay on the North Yorkshire coast.

2. Activity of possible neurosecretory cells in various ganglia was studied utilizing changes in cell size, nuclear size and amount of P.F. positive material. Similar cycles of production and release were reported in the cells of the left pleural and suboessphageal ganglia.

3. Ligation of appropriate connectives resulted in a demonstration of axonal transport of P.F. positive material along the left pleural-suboesophageal-visceral connective.

4. In external media at 50% sea water., L. **littorea** acts as in osmoconformer. When placed in 25% sea water, however, it changse and becomes an osmoregulator. Extirpation experiments implicated the left and right pleural and the left cerebral ganglia in osmoregulation. Removal of these ganglia significantly lowered the level of hyperosmoticity of the blood. It is suggested that the neurosecretory cells in these ganglia are responsible, at least in part, for osmoregulation.

5. Na + and K + levels in the blood were studied under a range of experimental conditions. The Na + concerntration was isosmotic with the external medium over a range of concentrations from 150% to 50% sea water. In 25% sea water, however, the Na + concentration became hyperosmotic to the external medium. The degree of hyperosmoticity was lowered significantly by the removal of the left and right pleural and the left cerebral ganglia. It is suggested that the neurosecretory cells in these ganglia are implicated, albeit indirectly, in the regulation of the Na + concentration in the blood of **L. littorea.**

   The K + concentration in the blood was, under all experimental conditions, hyperosmotic with respect to the external me-

2. Egg laying was decreased than the normal in case of khat extract and D-cycloserine, the rate of hatchability among these eggs was also decreased.

3. Khat extract induced a paralysis in the hind limbs in successful hatched embryos. In another cases the hatched embryos were found with unincorporated yalk sac.

4. D-cycloserine induced a reduction in the number of phalanges in the hind limbs of the hatched chicks (ectrodactyly), weakness in the distal bones, cross beak abnormality, and retradation in the development of the brain region as well as the eyes.

B — Trial for alleviation of the teratogenic effect of Khat extract and D-cyclosering. Protection of embryos from the previous malformations was undertaken when vitamin B-complex and/or vitamin B_6 were mixed with the drugs. The protection was much more pronounced with pyridoxine.

C — Effect of Khat extract, D-cycloserine, and Thalidomide on the treated fertile eggs :

1. Khat extract induced retardation in the development of embryos, cross beak, and reduction in the digits of the lind limbs.

2. D-cycloserine inhibit completely the development of the anditory vesicles in the earlier embryos as well as cedemation of the body and cross beak abnormality.

3. Thalidomide inhibit the evolution of one or the two eyes in the earlier embryos. Malformation of the forelimbs was also induced as phocomelia, while the left ones were completely arrested. In the advanced stage embryos, a reduction in digits of the hind was achieved.

D — Reflection of the teratogenic action of khat extract, D-cycloserine, and thalidomide on the chick neurone.

The three drugs caused a variable changes in the morphology and distribution in the golgi apparatus, mitochondria, Nissl bodies, RNA, and DNA. The neurofibrils of the neurons were unaffected.

the measured environmental parameters, but most species showed no such relationships. The living foraminiferids were patchy in their distributions. A study of the dead foraminiferids revealed that populations are fairly similar to the living populations.

A hundred and one species and varieties were identified. The living and dead populations are dominated by the superfamily Miliolacea, particularly species of **Ouinqueloculina, Sorites,** and **Triloculina.** All species and varieties of foraminifera determined are illustrated in the accompanying 20 plates.

These results from Jeddah Bay are similar to those obtained from hypersaline areas elsewhere.

186 — **Hammouda, Elsayed Mohamed.**
Effect of some drugs and chemical substances on the development of chick embryo. Ain Shams University., 1968.
204 p., fig.

In this work the action of Khat extract and D-cycloserine has been evaluated to induce teratogenic effect in the offsprings when mother hens were orally treated by these drugs, as well as when directly injected in the fertile eggs. The study has been also undertaken on the reflected teratogenic action of these drugs as well as the thalidomide on the constituents of the nerve cell.

In a trial for the alleviation of the teratogenic action induced in offsprings by the extract and D-cycloserine, the author used a different doses of vitamin B-complex as well as one of its constituents namely vitamin B_6 (pyridoxine hydrochloride). This was done by the administration of maxing doses of the drugs with experimental doses of these vitamins orally into the mother hens.

The results of these experiments were as follow :

A — Effect of treating mother hens.

1. Khat extract caused a loss of appetite among the treated fowl as well as a decrease in their activity, while with D-cycloserine no dectable changes on the hens were noticed.

rix to large, circular structures in which the internal structures eventually breaks down. The cytonlasm as a whole tends to be pale in cells with small dense mitochondria, and dense in cells with large, paler mitochondria. Pale highly vacuolated cytoplasm is associated with cells in which the mitochondria are breaking down ; the vacuoles are probably associated with the degeneration mitochondria. In **Phoxinus** maintained in aquaria for twenty-four hours before killing, the proportion of adrenocortical cells with small mitochondria with dark matrices, as compared to fish caught by stress-free methods and fixed immediately. In **Salmo,** which had been maintained in aquaria for longer periods, the proportion of cells showing mitchondrial degeneration and cytoplasmic vacuolation is higher. It is concluded that small, dark matrix mitochondria are typical of early stages of adrenal activity ; dense cytonlasm and an increased number of large, circular mitochondria are typical of maximum activity ; and mitochendrial degeneration and vacuolation of the cytoplasm is typical of exhaustion. Chromaffin cells, not hitherto described in teleost fish, are of the type found in other vertebrates, with many chromaffin vesicles containing varying amounts of granular inclusion. Synaptic contacts occur commonly, apparently all of cholinergic type. In **Salmo** the chromaffin and adrenocortical cells lie separately, but in **Phoxinus** the adrenocortical cells form a sheath round the posterior cardinal veins and their main tributaries, and the chromaffin cells lie beyond them, against the haemopoietic tissue. These chromaffin cells communicate with the vein by elongated projections running amongst the adrenocortical cells.

185 — Bahafzallah, Ahmed Abdul Kader
Distribution, ecology and systematics of recent benthic foraminifera from Jeddah Bay, Red Sea, 1975.
x, 219 p., 20 plates.

A hundred and fifty two samples were collected from Jeddah Bay. Seasonal distribution patterns of living benthonic foraminiferids populations from Jeddah Bay have been analysed to determine their relationships to measured environmental parameters. The following environmental parameters of the water were measured ; depth, temperature and salinity.

Distribution of living foraminiferal species and environmental parameters indicated that some species were clearly influenced by

the adrenocortical in this position. The adrenocortical tissue and chromaffin tissue may lie separately with the chromaffin tissue nosterior. There is little evidence for the association of a particular morphological type with a particular taxonomic group of teleosts, so that each species is best investigated in its own right.

2. The second section of this thesis comprises a detailed study of the morphology of the head-kidney of one particular species, **Phoxinus phoxinus** (Linnaeus), and a two year study of seasonal variations in the activity of its adrenocortical and chromaffin tissue. Samples of fish were collected from a population in the Walton Reservoir, Scotland, at monthly intervals. The activity of the adrenocortical tissue was assessed by measuring nuclear diameter of the adrenocortical cells, a criterion already widely used for this purpose. The activity of the chromaffin cells was similarly assessed, though the methodology is less well established in this case. The effects were compared of electro-fishing followed by anaesthesia and immersion in Bouin's fixative while still under electronarcosis. Both proved to be relatively stress-free methods. The reproductive cycle of both males and females sampled were assessed by measuring the gonadosomatic ratio, and by counting the proportions of different oocyte stages and observing the different spermatocyte stages in gonad sections. The cycle was found to vary a little from year to year, dependent on weather conditions. Nuclear diameter of both adrenocortical and chromaffin cells showed a seasonal variation which was closely cerrelated with reproductive cycle ; minimum mean nuclear diamentel in both cases occurring at the end of spawinig period. A high degree of adrenocortical activity accompanying spawning has been described independently in other teleosts.

3. The third section of this thesis comprises a study of the fine structure of the endocrine tissues of the head-kidney of **Phoxinus phoxinus** and **Salmo gairdnerii.** Electron micrographs were prepared using fish caught under stress-free conditions in the Walton Reservoir, and from aquarium-maintained fish. The adrenocortical cells in both species are characterised by having a great many conspicuous mitochondria with tubulo-vesicular internal structure. The nucleus is circular in section, and centrally situated in the cell. There is an extensive smooth endoplasmic reticulum and numerous ribosomes. Microvilli occur on cell surfaces in contract with veins. There is a wide range in the structure of the adrenocortical cells of individual fish ; mitochondria range from small, elongated structure, with a dark mat-

184 — **Al-Aegah, Nasser A.**
Endocrinology of the head-kidney tissues in teleost fish, St. Andrews University, 1977.
2 vols.

This is a study of the structure and functions of the endocrine tissues in the head-kidney of the teleost fish, the homologous tissues to the mammalian adrenal- cortex (= adrenocortical tissue) and adrenal medulla (= chromaffin tissue). The study is divided into three main sections :

1. The first section comprises a study of the general morphology, at the anatomical and histological level, of the different types of head-kidney which occur in teleost fishy. The range of types is illustrated by studies on twenty-four species, some of which have been previously investigated, and including in particular sixteen marine species from the Red Sea coast of Saudi Arabia collected by the author. No previous studies of the head-kidneys middle - eastern teleosts have been made, desnite their economic importance. From these twenty-four species, and 129 previously studied by Nandi (1962), there is clearly a considerable range in the anatomical configuration of the head-kidneys and the trunk-kidneys = The head-kidney may be separate from the trunk-kidney, completely fused with it, or intermediate in form. Haemopoietic tissue may occupy most of the head-kidney and functional renal elements may be absent, or renal elements may predominate. A complete range of intermediate forms exist.

Melanophore-macrophage complexes occur in the haemopoietic tissue. The distribution of the endocrine tissues is also very variable from species to species. Both the adrenocortical and chromaffin tissues are in some way associated with the main veins draining the head-kidney into the heart. They may exist as sheaths around major veins (either the posterior cardinals, or the ducts of Cuvier), as diffuse masses of tissue permeated by minor sinusoidal branches of the veins, or as discrete masses of tissue embedded in the haemopoietic tissue. The adrenocortical and chromaffin tissues may lie intermingled together, or they may form separate layers around the vessels, sometimes with the chromaffin closer to the vein lumen, sometimes with



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tural effects, but the toxin of **P. phaseolicola** caused only slight damage to dwarf bean mesophyll cells.

Ultrastructural changes in oats were accompanied by increase in the pH and ammonia contents of tissues. Exposure of leaves of oats and tobacco to ammonia vapour produced ultrastructural changes similar to those found in infected and toxin-treated plants, and necrosis was also induced. Infected and toxin-treated oat leaves developed no external symptoms when kept in the dark for 48 hours and there was no increase in tissue ammonia levels. Only slight ultrastructural changes occurred and these were mainly in infected plants. Transfer to light caused the rapid development of cellular external symptoms, and an associated rise in ammonia levels.

These results are interpreted in relation to the postulated modes of action of the toxins of **P. tabaci** and **P. phaseolicola.** It is suggested in halo-blight of oats, although other pathogenetic factors may be involved, that the major cause of symptoms, especially of chlorosis, is the action of ammonia on cellular components, particularly on chloroplasts. This ammonia probably is derived primarily from the action of the bacterial toxin on ammonia metabolism in the cell.

whereas there is no requirement for after-ripening in most of the seeds of subsp. **gummifer**, so the a large percentage of them can germinate immediately on maturation in the autumn. The optimum temperature for germination of subsp. **carota** is 20°C, but for subsp. **gummifer** it is between 20° and 25°C. Weak acids inhibited the germination of both subspecies, whereas alkaline solutions and KNO_3 were stimulators, and NaCl stimulated the germination of subsp. **gummifer** in the dark.

Transplanted D. carota subsp. carota grew better inland than subsp. gummifer, whereas transplanted subsp. **gummifer** grew better at an exposed site at Portland Bill. Wind at Portland Bill broke and killed plants of subsp. **carota**, whereas those of subsp. **gummifer** survived and were undamaged.

Sodium chloride had a beneficial effect on the growth of subsp. **gummifer** even at a concentration of 1 g/1, which inhibited the growth of subsp. **carota**. The highest wind speed produced in a wind tunnel (3 m/sec), decreased the growth of subsp. carota, whereas growth of subsp. **gummifer** increased with increasing wind speed.

The main conclusion of this study is that air temperature, wind speed and the salinity of the soil are the most important factors determining the distribution of the two subspecies.

183 — **Trabulsi, I.Y.**
Studies on halo-blight of oats and other diseases caused by Toxigenic species of Pseudomonas. University College of North Wales-School of Plant Biology, 1975.
60 p. + plates.

Inoculation of oat with **Pseudomonas coronafaciens** or tobacco with **Pseudomonas tabaci** caused water-soaking, chlorosis and necrosis but treatment of these hosts with toxin preparations from either pathogenc caused only chlorosis and little necrosis at a very late stage. 14 Co_2 Chlorosis was generally accompanied by reduction in fixation.

Infection of oats with **P. coronafaciens** or treatment with its toxin caused structural damage to cell components particularly to the chloroplasts. **P. tabaci** and its toxin produced similar ultrastruc-

The physiological basis of the different responses observed in (a) and (b) are discussed.

3. Those which provide evidence from experiments in which cytokinins may be the short-day hormonal factor which promotes flower bud development. The evidence is as follows :

   a) Kinetin, adenine and benzyaminopurine all promote flower bud development in plants kept in long days or at the threshold daylength (13 hr.).

   b) Kinetin shows most effect when applied at the stage of flower bud development when long day inhibitory effects express themselves most markedly (stages 8, 9 and 10).

   c) Kinetin is less effective the longer the daylength in which treated plants have been growing (prosumably the long-day hormonal factor is produced in greater «amount» in longer days and countaracts kinetin effects).

   d) To be effective kinetin has to be applied for 10-15 days after unfolding of the first trifoliate leaf.

182 — **El-Sheikh, Abdullah Mohammed**
Comparative physiological ecology of Daucus Carota Subsp. Carota and Daucus Carota Subs. gummifer. University of Reading-Department of Botany, 1973.
163 p.

A comparison was made between the physiological ecology of **Daucus carota** subsp. **carota** and **D. carota** subsp. **gummifer**, the first a widespread weed, the latter restricted to exposed coastal cliffs in the south-west. Experiments were carried our on germination, growth and flowering both in the field and in the laboratory. These included studies on reciprocal transplants in the field, growth on different soils, culture experiments on the effect of salinity, pH and nutrient concentration. Experiments on the effect of temperature, shade and wind were also conducted.

Germination in the field was found to take place mainly in the spring for subsp. **carota** as seeds need to be after-ripened over winter,

the leaves and which then pass into the developing buds. The results indicate that in short days there is produced predominantly a factor which promotes flower bud development, and in long days predominantly a factor which inhibits bud development. It appears as though the rate of bud development is regulated by an interaction between the two opposing factors.

This evidence has been obtained in experiments using two plant systems :

a) Two-branched plants : the main axis was decapitated above the node carrying the primary leaves so as to encourage the growth of the axillary branches and the development of two-branched plant. The two-branches received differential photoperiodic treatments.

b) Single-stemmed plants : the main axis was left intact and its leaves received different daylength treatments.

2. Those which provide evidence on the relative effectiveness of long day and short day treatments when given :

   a) alternately to two leaflets of the first trifoliate leaf, where one of the leaflets was given a long day treatment when the other was receiving a short day photoperiod.

   Here the results show that the long-day inhibition of flower bud development predominates when long days are alternated with shirt days in a ratio of 1 : 1. However, when the ratio of long to short days is increased to 3 : 3 or 6 : 6, the degree of long day inhibition is decreased.

   b) alternately to a single leaflet of the first trifoliate leaf, but where the short day treatments are given first.

Here the results demonestrate that the short-day promotion of flower bud development is expressed even when the ratio of long to short days is 1 : 1. Increasing the ratio to 3 : 3 or 6 : 6 leads to a marked short-day prozotion.

Narthecium ossifragum grows on both peat and on recently bared mineral substrates although it is usually found on peat soil (e.g. Newbould, 1960, Miles, 1967). Some analyses of the soil in which **Narthecium** grows have been made by Malmer (1958) for bogs in South Sweden ; and by Miles (1967) for Hazeley heath. Newbould (1960) for a bog in the New Forest and Malmer have analysed the above-ground parts of **Narthecium** for mineral ions. From these few results it is clear that **Narthecium** is found growing in nutrient-poor soils (table 1-I. c 2).

Little work has been done on the effect of the environment on the growth of **Narthecium ossifragum.**

Miles (1967) working on Hazeley heath drained one area where **Narthecium** grew by digging trenchs around it and flooded another. Flooding eliminated **Narthecium** and drainage reduced the height and number of inflorescence as well as the number of capsules per inflorescence. Miles (1967) also examined the germination of seeds of **Narthecium** on Hazeley heath by sowing seeds amongst vegetation and on plots bared of vegetation. The germination of seeds and the survival of seedlings on the bared plots over two years were not best in the areas where **Narthecium** grew best and he suggested that competition from other plants was more important than habitat in determination of survival.

181 — Saad, Faisal Abdallah.
Internal factors controlling the effects of photoperiod on flower bud development in phaseolus vulgaris (L) Savi. Cambridge University, 1972.
189 p. + Plates.

The thesis describes studies to investigate and analyse the internal factors which control the effects of photoperid on the post-initiation phase of flower bud development in **Phaseolus vulgaris.** The results obtained fall into three categories :

1. Those which provide further indirect evidence that the photoperiodic efects on flower bad development in **Phaseolus vulgaris** variety P-47 are mediate through hormonal factors produced in

The work reported may be thought of in four parts :-

Firstly : a study of the way plant grows on these heats. Included here are observations on the distribution and growth of rhizomes in the soil, the distribution of roots and of the zone of nutrient uptake in the soil, the growth of the above ground parts during the year and the amount of seed production.

Secondaly : a study of the correlation between the amount of growth made in a year by **Narthecium** in the field and certain habitat factors.

Thirdly : a consideration of some factors which affect germination and seedling survival in the laboratory and in the field, and

Fourthly : a study in the greenhouse of the nutrient requirements needed for good growth of seedlings and rhizomes.

According to Clapham, Tutin and Warburg (1962) **Narthecium ossifragum** is native to Britain and grows in Europe from the mountains of Portugal to Scandinavia and the Faroes. In Britain it grows mainly in the north and west and is uncommon and decreasing east of a line from the Tees to Portland Bill, although it is present in the New Forest and on the sand and gravel heats of Berkshire, Surrey, Hampshire and Sussex (Perring and Walters, 1962). In Berkshire it is now only present in the south of the country and is decreasing (Bowen, 1968). This decrease is likely to be general in south eastern Britain because wet heaths are continually being lost through drainage or other effects of man.

Miles (1976) found **Narthecium ossifragum** on Hazeley heath, Hampshire, in the two wettest communities he described Molinietum dominated by **Molinia** (75 to 100% cover of Molinia) and Shagnetum which was a wet heath community with variety of wet heath species each showing rather similar cover. Other accounts of south eastern heaths record **Narthecium** in rather similar communities to these where the peat surface is under the influence of ground water for at any rate part of the year (e.g. Rutter, 1955 ; Newbould and Gorham, 1956 ; Newbould, 1960) however a much greater variety of species may be present than Miles found on Hazeley heath.

Cultures grown in the dark were pigmented. Pigment analysis showed that the levels of phycocyanin and chlorophyll in dark-grown cells of selected strains are not appreciably lower than those in cells grown photoautotrophically at 500 Lux.

Unlike the cultures of C. **fritschii** which consisted of aseriate colonies only in the dark, all other strains consisted of filaments.

180 — **Orangi, Rushdi A.**
Some aspects of the physiological ecology of Narthecium Ossifragum. University of Reading-Botany Department, 1972. 127 p. + plats + Fig.

Narthecium ossifragum is a herb growing in acid bog soils in Britain and North West Europe. Near Reading it grows on most of the acid wet areas on heathland but varies greatly in abundance and vigour of growth from place to place. However the ecology of **Narthecium ossifragum** has not been studied in any detail particularly from the physiological side. For these reasons the plant seemed to be worth studying. My interest in this species is further increased because **Narthecium** is a perennial and rhizomatous plant.

I have studied **Narthecium** on two heaths near Reading and in the laboratory. The two heaths I selected for my study are Hazeley heath (National grid reference SU 7658 and Silchester common grid reference SU 6260) where **Narthecium** grows abundantly in the wet areas.

These heats are on north facing (Hazeley heath) and west facing (Silchester common) edges of a plateau covered with plateau gravel. Beneath the plateau gravel is a deep layer of the lower Bogshot Beds at Silchester common, but at Hazeley heath a thin layer of the Bracklesham Beds overlies the lower Bagshot Beds. On both heaths **Narthecium** grows on areas on the Bracklesham and Bagshot Beds where ground water keeps the soil wet. The vegetation of th eheaths near to the areas where **Narthecium** grows is dominated mainly by **Molinia caerulea, Calluna vulgaris, Calluna vulgaris and Erica tetralix and Sphag num** spp. For a description of Hazeley heath see Miles (1967) where references to descriptions of the vegetation of other southern heaths may be found.

ributed non-randomly between cells indicating that cells may differ in their resistance to penetration. There were also differences between clones in total number of haustoria produced which appeared to be correlated with resistance to growth phases I and III and to resistance to lesion growth. Thus factors affecting haustorial formation may be important in the differences in race non-specific resistance between the clones.

179 — **Khoja, Talat M.**
Heterootrophic growth of blue-green Algae. University of Durham, 1973.
viii, 142 p. illus. 30 cm.

Twenty four strains of blue-green algae were screened for their ability to grow heterotrophically in complete darkness with sucrose. Eighteen of these strains proved capable of growth in the dark and all of these latter continued to grow on repeated subculture. Only six strains failed to grow in the dark and of these six, one was still viable after three months incubation in the dark. Among the organic substrates tested, sucrose (0.01 M) was found to be the best substrate in allowing a considerable growth of the majority (ten out of eighteen) of the cultures in the dark.

Chlorogloea fritsehii and four other strains were selected for obtaining their growth rates under different environmental conditions. **C. fritschii** was further used in a comparison of the dark growth rates of three heterotrophic cultures : material first subcultured from light to dark, material subcultured from dark to dark and material after three years of subculturing in the dark. The growth rates (K) of all three heterotrophic cultures were found to be the same, thus sugesting that no physiological adaptation had taken place as a response to prolonged heterotrophic conditions.

The addition of sucrose to cultures of **C. fritschii** and of four selected strains in the light (500 lux and up to 4000 lux with **C. fritschii**) resulted in an increase of the growth rate (K).

Growth of five strains incapable of growth in dark was significantly stimulated by sucrose at 500 and 1000 lux. Only **Anabaena variablis** did not respond significantly to sucrose.

whether resistance could be explained by passive factors only. Five clones with different levels of race non-specific resistance were used.

Hyphal growth rates in all clones and in all tissues tested were similar and thus growth rate can play no part in the differences in race non-specific resistance between these clones. The growth rates in all experiments at all temperatures used linear indicating that resistance does not involve active factors accumulating in the tissue ahead of the lesion to concentrations high enough to affect hyphal growth. Thus resistance to hyphal growth would appear to depend upon passive factors only. The growth rate on different media was always faster than that in tuber tissue indicating that hyphal growth **in vivo** may be affected by inhibitory factors, but if so, these factors are equally active in all clones.

The total time required for the penetration and initiation of hyphal growth at the inoculated surface and for the establishment of visible sporulating mycelium on the opposite surface (Growth phases I and III differed between clones and thus is a factor in the differences in race non-specific resistance between the clones.

The rate of initiation and spread of lesions in the tubers differed between clones. These rates, in all clones, were slower than those calculated for the initiation of hyphal growth and for hyphal growth itself, indicating that the hyphae are growing ahead of the fluorescent tissue surrounding the nectoric tissue.

The tuber tissues of the different clones were colonized to an equal extent and thus there was no evidence to indicate that active factors might accumulate to different levels in the tisues behind the hyphal front in the different clones and thus affect the extent to which lateral branches developed to further colonize the tissues.

Hyphae were distributed non-randomly in the medullary tissue in the tubers and stems of Craigs Alliance and in the tubers of Pentland Dell and Pentland Squire, indicating that this tissue is not uniformly susceptible to colonization, but that there are pockets of tissue more resistant than others.

Four types of haustoria were found in tuber and stem tissue but only two types were found in leaf tisue and there was no obvious relation between haustorial type and resistance. Haustoria were dist-

177 — **Doaigey, Abdullah Rasheed**
Histological studies in the genus Antirrhinum the significance of histological characters in the texonomy of European species of Antirrhinum Scrophulariaceae. The University of Bradford, 1977.
iv, 239 p.

A survey of the anatomy and taxonomy of the Scrophulariaceae and the tribe Antirrhinaeae with particular reference to the genus **Antirrhinum** L. is presented.

The morphological and histological characters of European species of **Antirrhinum** L. have been investigated, with particular reference to the surface characters of leaves and stems.

The epidermal characters of leaves and stems have been used to provide additional characters in the establishment of texonomic relationship in European species of **Antirrhinum** L. Several differences from Flora Europaea (1972) classification have been observed ; **A. boissieri** Rothm., **A. ambiguum** Lange and **A. rupestre** Boiss & Reuter are recorded as distinct species and **A. mollissimum** (Pau) Rothm. to be identical with **A. molle** L.

It is proposed that European species of **Antirrhinum** L. comprise 20 species with **A. majus** L. subdivided into five subspecies ; a scheme for identification is provided.

178 — **Kassim, Mohammed Yahia Ahmed**
Potato tissue resistance to the growth of phytophthora infestans. Glasgow Univ., 1976.
ix, 197 p. + app. fig.

This thesis describes an investigation of aspects of race non-specific resistance which determines the rate at which tuber tissue is colonized by **Phytophthora infestans**. It was mainly concerned to determine whether active resistance mechanisms are involved or



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homologous chromosomes, or the amount of heterochromatin, or number of reiterated sequences, increases on one, and decreases on the other homologue.

3. Previous studies on crosses and backcrosses between PL, in which changes in DNA can be induced by the environment, and R, a linseed variety in which changes cannot be induced, have shown that PL contains cytoplasmic and nuclear factors which are necessary for induced changes to occur. Further crosses and backcrosses were made which showed that the nuclear factor was directly involved in the environmental induction, not merely in maintaining the cytoplasmic factor, but, to operate, it had first to be activated by the cytoplasmic factor. L and S were each reciprocally crossed to PL, and to R, in initial studies on the genetic factors maintaining the induced DNA changes in each generation in the absence of the inducing environments. The situation is complex but it is possible that in L there is a feadback from nucleus to the cytoplasm which inactivates the cytoplasmic factor. L and S genotrophs. in which the DNA had previously been reverted to the original PL amount, appear to have become more resistant to further changes.

majority of extant pentastomids infest the respiratory tract of amniotes which are predominantly terrestrial, then the pentastomid ancestor must have done the same. As will be obvious shortly, this conclusion is not justified.

176 — **Al-Saheal, Yosif Ali**
Genetic factors of flax genotrophs. The University of Wales, 1974.
296 p. tabs.

Genetic factors determining the differences between the large (L) and small (S) genotrophs, induced by growing flax plants of the variety Stormont Cirrus (PL) in different environments, and between these and PL itself, are studied in three investigations.

1. F_2 and F_3 generations of reciprocal crosses between L and PL, and S and PL, were grown for five weeks two temperatures and transplanted into the field. Although the PL chromosomes influenced the amounts of DNA in the crosses there was no clear evidence that they either produced reversion of the induced DNA or that the PL chromosomes themselves were altered by the L or S chromosomes. Similarly, factors in L and S determining plant weight may have been altered by the PL chromosomes, but it is also possible that the L and/or S chromosomes induced changes in the PL chromosomes.

2. Changes are induced in a factor H-h (hairy-hairless septa) by the environments at the same time as the DNA and plant weight changes are induced and previous studies have shown that H-h is associated with, and therefore perhaps linked to, factors determining the induced plant weight changes in L and S. F_2 plants of reciprocal crosses in coupling ($L^H \times S^h$) and in repulsion ($L^h \times S^H$) were grown with their parents at two sowing times. The association in the F_2 between the segregations of H-h and plant weight varied between the coupling and repulsion phases and between the two sowing times, from a strong significant possitive association to a strong significant negative association. Plant height and H-h similar results. A model is suggested wherein either exchanges of heterochromation occurr between

have no free-living stage. The primary larva, which hatches from the egg if ingested by a suitable host, is highly specialised for tissue migration (Self, 1969). Having penetrated the body cavity, the primary larva moults to produce a nymph which is a miniature version of the adult. It is therefore, impossible to attempt any meaningful comparison between any of the stages in a pentastomid life-cycle (with the notable exception of the early embryonic stages, (Osche, 1963) with those of other arthropods, particularly on the basis of gross morphology, any more than say an adult female **Sacculina** could be compared to a free-living **Lepas**.

However, despite the numerous parasitic adaptations exhibited by pentastomids, a surprisingly large number of features reflecting real arthropod homologies, have been retained. These will be briefly reappraised.

Osche's (1963) studies of the anatomy of an early embryo of **Reighardia sternae** was the first convincine indication of arthroped structure has profound implications. The most important observation was that the embryo possessed three distinct pairs of appendages with a pair of lobate limb buds in the preoral position anterior to these. Furthermore, sections of the embryo revealed four paired coelomic sacs associated with each of these appendages, with another reduced pair of sacs behind the posterior limbs (incidentally) these coleom rudiments do not persist in the adult so that the pentastomid body cavity is a haemocoel). According to Osche, these appendages represent two pairs of antennae, mandibles and maxillae. Epidermal outgrowths, identified as presumptive ganglia corresponded to each limb pair, with an additional ganglion anlage, the archicerebrum, at the anterior extremity of the larva. Thus the embryonic head seems to be composed of at least five segments, two of which are preoral in position. This arrangement places pentastomids at the level of mandibulate arthropods (Uniramia or Crustacea). Two further features of the embryo are uniquely arthropodan : the eggshell and the dorsal organ. The eggshell, a blastoderm cuticle secreted by the epidermis of the embryo, is enveloped by a mucous layer produced by the dorsal organ. The later is known only from a few arthropod groups-the Xiphosura, Crustacea, Myriapoda, Entognatha and Pterygota (Osche, 1963). Thus there is an impressive array of embryonic traits which reveal genuine arthropod homologies. However, Osche opts for myriapods as the closest relatives of pentastomids because he assumed that since the

175 — **Banaja, Abdelelah Abdulaziz**
Aspects of the biology of the pentastomid reighardia sternae diesing 1864. Dundee University, 1975.
viii, 174 p., illus.

Since each of the preceeding chapters has its own discussion this concluding chapter is solely concerned with the Phylogenetic relationships of pentastomids.

It now seems well established that arthropods are polyphyletic (Manton, 1973) This means that the process of arthropodization (the aquisition of distinctive arthroped characters such as a chitinous jointed exoskeleton, a distinct head tagma composed of several segments with at least one in the preoral position, jointed limbs) has occurred more than once (Tiegs & Manton, 1958 ; Manton, 1973 ; Anderson, 1973). Clearly there are degrees of arthropodization. For example tardigrades possess none of the aforementioned characteristics and cannot, by any stretch of the imagination be construed as arthropods whereas onychophorans have begun to acquire some (chitinous exoskeleton, head tagma, reduced coelom etc.) are therefore qualify as primitive arthropods. This chapter argues the case for the inclusion of the pentastomids within one of the existing arthropod phyla.

The peculiar anatomy of arthropods, together with their chitinous body covering has enabled them to become adapted to almost every conceivable type of biotope. Parasitism has arisen independently within many arthropod groups, and frequently the adaptation to this mode of life has resulted in fundamental changes in gross morpholgy, especially where the parasite is sedentery or fixed permanently to its host. Figure 1 serves to illustrate the point. These endoparasitic or semi-endoparasitic crustaceans are so grossly modified, particularly with regard to the loss of jointed appendages, that it is only possible to classify them with certainty because free living stages in their life - cycles are more or less morphologically identical to similar stages in non parasitic relatives (i.e. **Sarcotaces** has a normal nauplius stage etc., and the familiar cirrepede parasite **Sacculina** has a normal cypris stage).

This last point has been a major stumbling block in the interpretation of pentastomid phylogeny simply because pentastomids

2. Many mycelial colour mutants resumed the ability of pigment formation at low pH (5) but wild type strains, whether green or white, were unaffected at any pH value. Some chemicals such as the commercial preparation of CAS inhibited pigment formation in all green developmental mutants as well as their respective wild type strains, but a synthetic preparation of CAS did not bring about this response. Other chemicals such as methionine, cystine, cysteine, isoleucine and leucine promoted pigment formation in some leaky white mutants. Since mycelial pigmentation is a product of secondary metabolism, and since secondary metabolism is dependent on the products of primary metabolism, these results clearly indicated that these primary metabolities greatly influence mycelial colour formation.

3. Modifier genes which affected the activity of the gene G/g were detected in three different crosses. The genes C/c and D/d were found to interact to modify the expression of G in the strains 5 and 24. The genes M/m and R/r were found to modify the activity of g allele in the cross MA 3 × Na/9/1 and the cross 1_3 X ABl also indicated the presence of modifier genes in these two strains. Whether these modifier genes are the same or different in the three crosses can only be resolved by appropriate breeding experiments.

4. Two new linkages between the loci **ilv-1** and **his-1** and also between meth-3 and gly-2 were detected.

5. Variation in the s — g — p distance was encountered which is in agreement with the universal observation that gene order in chromosome mapping is invariant, but map distance of a particular region often varies from one cross to another.

6. The loci **ilv-1, his-1** and **meth-3** were found to be close to their respective centromere. Other results suggest that **ad-4** may also be closely linked to its centromere. The locus **ilv-1** was a particularly effective centromere marker gene because it was only 1.3 units from its centromere.

7. Double crossovers in one region were found more frequent than double crossovers with one crossover in each segment of the s — g — p region. This is in agreement with what Teyel (1975) reported previously. There was an intense negative chromosome interference in this region, but sample size did not permit informative chromatid interference analysis.

cytoplasmic organelles of **B. fabae** were found to be denser when the fungus was grown artificial media. Lomasomes were found to be common in the cytopiasm of this fungus, and the relation of this structure to the hydrolysis of the host cell wall is discussed.

(5) Several biochemical tests were to assess the significance of some of the structural changes taking place in the host as a result of infection (i.e. amino acid composition, protein synthesis and photochemical activities of isolated chloroplasts). Special emphasis was placed on the effect of both infections on the latter process. The results can be summarised as follows :

a) infection with U. fabae caused an increase in the rate of the Hill reaction, cyclic phosphorylation (2-10 days after infection), followed by a decrease in such activity (12-20 days after infection). The infection also caused an alternation to ATP : e− ratio.

b) infection with **B. fabae** caused a marked reduction in all photochemical activities tested, (i.e. Hill reaction, cyclic and uncyclic phosphorylation).

c) The observed effects were found to be independent of the chlorophyll concentration and the reduction in the photosynthetic area.

174 — Baeshin, Nabih A.
The Genetics of Nectria Cosmariospora ces & de not. Dundee University, 1976.
xi, 198 p., illus.

The present work was initiated as a continuation of Tayel's (1975) work on **Nectria cosmariospora** which demonstrated the efficiency of this species for formal genetic work. The following points emerged from the present study :

1. Auxotrophic, mycelial colour and developmental mutants were easily induced, detected and isolated using NTG as a mutagenic agent. Certain calculations indicated that the number of genes affecting protoperichecium formation about 92 and about 85 affect mycelial colour. These figures indicated that the developmental pathway represented by Fig. 3.1 contains many enzymatic steps.

173 — **Abu-Zinada, Abdul Aziz.**

Fine Structural andbiochemical studies on the infection of Vicia Faba L. by Uromyces and Botrytis. Durham University, 1971.

141 p. + plts.

(1) Fine structural and biochemical studies have been made on the infection of **Vicia faba L.** by **Uromyces fabae** (obligate parasite) and **Botrytis fabae** (facultative parasite).

(2) Fine structural observations of host cells infected with U. fabae showed that they could be divided into two categories (a) cells with increased capacity for synthesis (2-8 days after infection). which are characterised by an increase in the volume of the cytoplasm and by an increase in the size of cytoplasmic Organelles (i.e. rough endoplasmic reticulum (ER), nuclous, mitochondria); (b) cells with decreased metabolic activities (12-20 days after infection) and characterised by senscence of the cytoplasm and by the reduction in the size of cytoplasmic organelles, especially chloroplasts. Numerous vesicles were found to be associated with the inner membrane of chloroplasts in such infected cells.

(3) Electron microscopic observations showed that cells from leaves infected with **B. fabae**, can also be divided into two categories, (a) cells in the centre of the necrotic lesion which are characterised by blackening and the destruction of the tissues : (b) cells at the peripher of the necrotic lecsion, which are characterised by an increase in the volume of the cytoplasm, an increase in the size of cytoplasmic organelles, by the presence of lomasomes, and by the presence of vesicular inclusions in the cytolasm and electron dense bodies in the extracolluar spaces.

(4)The fine structure of **U. fabae** resembles that of other comparable obligate parasites, expect for the presence of an electron dense ring in the middle part of the haustorial neck, and vesicular and tubular structures in the vacuoles of this fungus. The growth of B. **fabae** on the host tissues was found to be relatively limited as compared with its growth on artificial medium. Likewise, the cytoplasm and



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lopment of Saudi Arabia, it is difficult to conclude about the profitability of building such factories to exploit these deposits. The main reasons are, inaccuracies in the estimate of deposits, lack of trained labor, low grade of the iron and the uncertainty of future discoveries of other deposits nearby on the supply side ; on the other hand the lack of effective demand provided a major obstacle to the economic exploitation of these deposits. Furthermore the writer finds it hard to agree with the proposal of Petromeen about locating the plant in Jedda rather than Wadi Fatima near the source of the raw material.

Therefore it is recommended that more time should be allowed and more studies should be oriented towards the major obestacles facing the exploitation as well as the marketing of these deposits simply because the success of this factory is of great importance to the industrial future and economic development of Saudi Arabia.

172 — **Yamani, Mohamed Abdullah Abdu**
Geology of the oolitic hematite of Wadi Fatima, Saudi Arabia & the economics of its exploitation. Cornell Univ., 1968.

The oolitic hematite deposits in Wadi Fatima and Shumaysi districts was discovered in 1954 by Drs. Burnburg and Schott from the Minestry of Petroleum and Mineral Resources in Saudi Arabia. They belong to the Shumaysi formation which is believed to be Obligocene in age ?

Karpaff 1959, Brown and Jackson 1960 have also contributed significantly to the study of the geological aspects of the district. Shanti 1964 studied in more detail the geology of area. His work includes detail geologic mapping the various areas that contains the oolitic iron ore in the district.

The main purpose of this study is to determine the source of the iron ore and to investigate the possibility of locating more iron ore within the district. Also to study the economic feasibility of exploiting these deposits. Outcrops in a 70-square kilometer within the district were examined and sampled. Airphotos were also used in remapping some parts of the districts.

A total of 45 specimens from both Shumaysi and Fatima series were studied microscopically, as well as core samples from the various drill holes in the district. A total of 250 samples of the oolitic iron ore were analyzed by wet chemical analysis.

Spectorgraphic analysis was also used for determining the trace elements in the samples. The results of these various studies demonstrates that the source of these oolitic iron deposits in Fatima series. Furthermore these studies have proven that only when the Shumaysi formation is in association with the Fatima series, it carries the oolitic iron ore.

The government of Saudi is planning to build a steel industry and exploits these iron deposits of Wadi Fatima. This study shows that although these deposits are of considerable importance to the deve-

3) Despite the great diversity of facies in both limestone and detrital clastic, the formation shows a cyclic succession of some stratigraphic units indicating intervals of retreat and advance of the Tethys Sea on the edges of the Afro-Arabian massif.

Middle Triassic rocks across the Middle East provide information on regional palegeography based on the distribution of four depositional facies : i) mixed clastic carbonate rocks with evaporite deposits of non-marine and very shallow to somewhat shallow open marine water ; ii) very shallow marine carbonates water ; iii) shallow open marine carbonate water (Tethys Sea shelf facies) ; and iv) basinal marine water (Tethyan through facies). These clearly display the structural history of the region.

On the basis of the distribution of the depositional facies across the Middle East, several major structural provinces were present during the Middle Triassic time : the Afro-Arabian massif, the Middle East platform, and the Tethyan trough. Measurements of directional features indicate that the Afro-Arabian massif was the main source material for the Middle Triassic clastic rocks. Most of the Middle Triassic sediments across the Middle East were deposited chiefly on a stable shelf area (the Middle East platform). Several positive and negative areas have been recognized within this platform : 1) the central Arabian embayment (the present central Arabian arch), 2) the sotheastern uplift, and 3) the Jawf-Rutbah-Mardin high. The deeper, basinal marine sediment (Tethyan trough facies) of the Middle Triassic has only been recognized in the Late Cretaceous nappes of Permian to Cretaceous age of the present Oman Mountains, northeastern and central Iran, and some part of central Syria.

The Permian - Triassic sequence in the Middle East indicates a favorable basin for oil potential and stimulates interest in these rocks in Saudi Arabia and surrounding areas. Furthermore, potential oil and gas production from probable Middle Triassic beds have been reported from northwestern Iraq as well as northeastern Syria.

western portion of the study area, the thick accumulation of the Wabash Formation could account for much younger time than the Kokomo Limestone Member represents.

171 — **Sharief, Farooq Abdulsattar M.**
Sedimentary facies of the Jilh formation, Saudi Arabia ; and regional palestratigraphy and Tectonic evolution of the Middle East during the middle traissic period. Rice University, 1977.
ix, 117 p. + app.

The analysis of depositional sedimentary facies across the Middle East during the Middle Triassic is based on a detailed study of lithofacies of the Middle Triassic Jilh Formation of Saudi Arabia. This study provides some clues to delimit the Tethyan trough, its geological history, the plate tectonic evolution of the region, and local tectonics of the Arabian Peninsula.

In addition to the detailed stratigraphic and petrographic studies on the outcropping Jilh Formation, a fence diagram shows the regional distribution of the Middle Triassic sedimentary facies across the Middle East.

The principal conclusions of the examination of the Jilh outcrops are :

1) The central and southern parts of the Jilh outcrops consist of predominantly fine - to medium - grained, clean sandstone with some shale separated by thin units of discrete thin-bedded, variably textured limestons. In contrast, the northern area is entirely carbonate with some interbedded sandstone containing a high percentage of fine clay matrix and shale. The same thin limestone units of the southern and central areas are clearly discernible in the north.

2) The pattern of sedimentary facies indicates systematic vertical and lateral gradual changes of depositional environments. In general, the sediments divide into nine sedimentary facies broadly representing a belt of mixed clastic-carbonate rocks with some evaporite deposits. These sediments are made of distinctive non-marine (fluvial), supratidal flat, and shoreline to some what shallow marine shelf depositional system.

correlated with some of the Michigan units. These lithologies include in ascending order. the A-0 and A-1 carbonates, A-2 carbonates and shales, B carbonates, C shale, D carbonates, and carbonates and shales of units E through G. Reef and reeflike lithologies are found interbedden with the A-0, A-1, A-2, and B carbonates. In the subsurface of central northern Indiana, the basin facies is in the form of the Kokamo Limestone Member of the Salina Formation.

All the reef and reeflike rocks of northern Indiana are known as the Huntington Lithofacies. These rocks are found in the from of : 1) the Fort Wayne Bank that extends across the study area between northern Lake County and Allen County, 2) the Northwestern Reef Tract that extends from southern Lake County to northern Carroll County, and 3) isolated reefs found over central and western northern Indiana. The accumulations of the Huntington Lithofacies are continuous or nearly continuous upward from the Salamonie Dolomite in the Fort Wayne Bank and the Northwestern Reef Tract but are mostly confined to the Wabash Formation in case of the isolated reefs.

The studied section, which is more than 500 feet thick, was greatly influenced by the sedimentational regime in the Michigan Basin to the north. Such influence included a relatively rapid rate of subsidence and cyclical transgression of above normal-salinity waters into northern Indiana. The first of these waters led to the deposition of the Limberlost and A-0 carbonates. Over the shelf area a partial return to normal-marine conditions brought about the deposition of the Waldron shales and shaly micrites. The second cycle led to the formation of the Louisville and A-1 carbonates. Before the end of Louisville deposition, normal-marine conditions began spreading over the southern portion of the study area and prevailed through late Silurian time. North of the Fort Wayne Bank, normal-marine conditions were interrupted by the third, the fourth, the fifth, and even additional cycles of the transgressive above normal-salinity waters at the time of deposition of A-2 B, D, and younger units. The normal 1 marine Mississinewa Shale environment transgressed north of the Fort Wayne Bank from the south to result in deposition of A-2 shale. The environments responsible for the C shale and younger shales in the E and possibly the G carbonates transgressed from the north and northeast into northeastern Indiana. In central northern Indiana, the Kokomo represents continuing evironmental restriction during deposition of the B through D carbonates. Over much of the

and mainly in the Rosbeg area. In this particular area a swarm of small basic intrusions extend in one and the same direction along Dawros Bay on the Atlantic Ocean. A varied suite of rocks is involved and there are some attractive phenomena accompanying the minor intrusions. For example, one group is characterised by being rich in garnets and being surrounded by white mantle of adinole.

These two characters are not found in association with the other basic intrusions that invade the country rocks in Co. Donegal. These phenomena have previously attracted professor Pitcher who is now leading a school of research on the geology of the north-west of Ireland. The school of research started sometime ago under the leadership of Professors Pitcher and Read at Imperial College of London. Professor Pitcher introduced the problem of the basic minor intrusions to this writer in 1963.

The main researches have been centred around Rosbeg, but other areas which have been examined are Dunlewy-Errigal, Derryreel and Dooros point. The last two localities involving the problems connected with a major basic intrusion knows as the Mam Sill.

170 — **Okla, Saleh Mohamed**
Subsurface stratigraphy and sedimentation of middle and upper silurian rocks of Northern Indiana. Indina University, 1976.
143 p. maps.

Subsurface data on the thicknesses and lithologies of the Middle and Upper Silurian rocks of northern Indina were collected from 670 strip logs of cores and well cuttings, 24 cores, and 227 geophysical logs. The studied section includes shelf and basin facies confomably overlying blanketlike carbonate deposits covering the Wabash Platform and known in northern Indiana as the Salamonie Dolomite (Middle Silurian). The shelf facies include in ascending order : the Limberlost Dolomite, Waldron Formation, Louisville Limestone, and Wabash Formation. Reef and reeflike rocks are found within and are common to all the shelf units. The shelf units are generally distributed over the southern half of the study area. Over the northern half is the basin facies. In northern Indiana, the basin facies is known as the Salina Formation. In Michigan, it is the Salina Group with units A through G. The Salina Formation includes lithologies that can be

168 — **Nazer, Naji M.**
Middle and upper jurassic terebratuloid from Saudi Arabia.
University of Wales, 1973.
265 p., 11 plts., 30 cm.

Jurassic strata are particularly well exposed in the central region of Saudi Arabia and form the escarpment of the Tuwaiq Mountains. The Tuwaiq Mountain Limestone (Callovian-Cxfordian) and the Dhruma Formation (Bajocian-Callovian) have been specially selected because of the abundance of brachiopods at these levels.

Jurassic terebratuloid brachiopods of Saudi Arabia are very poorly known. Therefore, the primary object of this project was to make a systematic study of the Middle and Upper Jurassic terebratuloid of the above named formations. The second object of this study was to add to our knowledge of the distribution of Jurassic brachioped faunas in Saudi Arabia and the relationship of these faunas to those of the surrounding areas.

Nineteen genera and twenty eight species have been identified and described ; of these there are seven new general and seventeen new species. All of the described speciments are of Bathonian or Gallovian age, excent for **Loboidothyris najdiensis** sp. nov. which is Oxfordian.

General geographical distributions are attempted from the available literature and museum collection. This seems to indicate that there was a distinct Arabian-East African brachiopod province, at least during Middle and upper Jurassic times. On the other hand, there are some elements of the brachioped fauna which provide a Tethyan flavour in the region and assist in indicating a southern shore-line of the Tethys which passes through central Saudi Arabia. Both the associated faunas and the lithological facies provide further evidence for the above conclusions.

169 — **Obaid, Talib Mohammed Said.**
Structure and petrology of Certain minor intrusions in county Donegal Fire, with special reference to the time of emplacement. University of Liverpool - Department of Geology, 1967.
vii, 350 p. plats. illus., maps.

This research has been carried out in Country Donegal, Ireland,

area (Vol. I, Ch. 3). The landform classification has been tabulated (Vol. II, tables 9 — 11) and the maps are presented (Vol. III, Figs. 16—20) to show the major landform systems and units with a sample area showing the smaller units (landform type units) of the landforms.

Particle size analysis and pebble shape were employed to give some information about deposition and transportation on selected pediments and alluvial fans. A discussion and critical reviews of relevant literature on the theory of sieving and sedimentation given (Vol. I, App. B). This is followed by an introduction to the procedure for field and laboratory methods of particle size analysis and pebble shape measurements (Vol. I, Ch. 4).

The terminology for piedmont surfaces is discussed to clarify some of the confusion concerning the use of such terms. This is followed by a review of the theories ocncerning pediment formation, development, and their relationship to other landforms (Vol. I, Ch. 5). The particle sizes of samples taken from pediments and the shapes of pebbles derived from these pediments have been measured, analysed, and discussed in relation to pediment, slope, distance from the mountain fronts and depth (Vol. I, Ch. 5, Vol. II tables 15 — 92, figs. 78 — 110, pl. 1 — 8, and Vol. III figs. 21 — 45b).

Alluvial fans are another type of the landforms which are discussed in detail. They are well developed in the south-western parts of the study area where they form a series of confluent alluvial fans (bahada). Terminology and the theory of fan formation is discussed on the basis of field investigation and aerial photographic interpretation together with reviews of relevant literature (Vol. I, Ch. 6). Size analysis of fan deposits as well as pebble shape are once again used to obtain information about transportation and deposition (Vol. I, Ch. 6, Vol. II tables 93 — 147, figs. 111 — 140, pl. 9 — 16, and Vol. III figs 46 — 77).

Finally these studies are considered in relation to indications of climatic changes within Central Saudi Arabia. Problems of geomorphological mapping and interpretation are discussed and short accounts given of future work needed for detailed understanding of the desert landscape through the regional analysis of the landforms of a part of Central Saudi Arabia (conclusions).

4. During Cenomanian-Turonian times, the sedimentation of the Wasia Formation involved alluvial floodplain conditions. The Wasia sands and gravels were derived from the same sources as the Biyadh and were formed in comparable environments and by easterly flowing low-sinuosity streams. This fluvial faces of the Wasia can be traced over most of central Arabia and extended into north-western Arabia, in the vicinity of Al-Jauf and Sakaka areas.

5. A major marine transgression occurred during Campanian-Maestrichtian times and reached its acme when the Aruma carbonate rocks were deposited in the vicinity of Al-Jauf and Sakaka, near the Jordanian border in northwestern Arabia.

167 — Munshi, Z.M.N.
Geomorphological mapping and landform analysis in Central Saudi Arabia. University of St. Andrews, 1974.
2 vols.

The aim of this study is to seek for a more detailed understanding of the geomorphology of some parts of Central Saudi Arabia, on the basis of aerial photographic interpretation, field surveys and investigation, and data obtained by field and laboratory analysis.

An introduction to the study area is given together with an account of the geology and physiography of Saudi Arabia and especially the study area based upon drilling, field studies, and records from a variety of sources (Vol. I ; Ch. 1).

A procedure for geomorphological mapping is discussed together with a review of the principles, problems, methods, and development of geomorphological mapping (Vol. I, Ch. 2 and App. A). Following these principles and methods, geomorphological maps have been compiled on the basis of the interpretation of air photographs, field surverys and investigation, and laboratory analysis of surface materials (Vol. III, figs. 12a — 15b).

An attempt has been made to compare the method of geomorphological mapping with the results of landform classification including discussion of the application of the Land System approach to the

of the Biyadh-Wasia Sandstones is presented. Lithological, compositional and textural data have been utilised to interpret the succession of palaeoenvironments and source areas of the Buwaib-Biyadh-Wasia Formations and have enabled the following conclusions to be drawn with respect to the evolution of regional palaeogeography :

1. During Hauterivian times the Buwaib carbonate rocks were developed under a shoreline, forming successive belts of lagoonal, intertidal, supratidal character, and these are responsible for the deposition of the calcilutites, dolomitic, gypsum and with restricted fauna. The open shelf lay to the east of the lagoon zone and was accounting for the development of the calcarenites (shallow shelf) and calcilutites (deeper shelf) and together with diversified biota. At its maximum extent, the «Buwaib Sea» appears to have extended to the west, nearly reaching the city of Riyadh in central Arabia and covering the northeastern regions, i.e. the Basra area in Iraq, Kuwait, Qatar, Bahrain and Oman. South of Riyadh the Buwaib facies may be traced towards the southeast over the Rub-al-Khali area and perhaps reached the region of Dhufar on the Arabian Sea.

2. During early Barremian times a regressive phase began and is marked by the accumulation of the alluvial substratum (dominant) and topstratum deposits of the Biyadh Sandstone Formation. This fluvial lithofacies of the Biyadh was formed as the result of seasonal rainfall over the basement complex area of the Arabian Shield (igneous and metamorphic rocks, mantled by Palaeozoic and early Mesozoic sedimentary rocks) in the west, and the development of temporary, relatively low-sinuosity streams, and flowing generally towards the east. The fluvial facies of the Biyadh can be traced over the area of southwestern Iraq, Kuwait, central Arabia and over the southern portion of the coastal area on the Arabian Sea.

3. Between the Biyadh and Wasia Formations, the intervening shu'aiba carbonate and clastic units were formed, during Aptian times, in a very shallow marine environment coeval with the Upper Biyadh Sandstone in central Arabia. It is well developed in the subsurface to the east of Central Arabia and in the regions of the Arabian Gulf, and interfingers with the upper parts of the Biyadh at outcrop in the area studied.

$Fe_{16.6}$ — $Ca_{8.5}$ $Mg_{46.0}$ $Fe_{45.}$), Ca-rich pyroxene ($Ca_{43.7}$ $Mg_{47.2}$ $Fe_{9.2}$ — $Ca_{37.0}$ $Mg_{38.2}$ $Fe_{24.9}$).

Optical, XRF, XRD, microprobe and EMMA—4 methods have been employed to study the various mineral species. Electron microprobe, electron microscope and EMMA—4 techniques have been used to study the exsolution lamellae in pyroxenes and also to calculate their equilibration temperatures.

The chemical variation of bulk rock oxides and trace elements including sulphur has been determined by X.R.F.

A marked cryptic variation in the Kapalagulu principal minerals is considered to be a remarkable example of crystal accumulation. The marked reversals in cryptic layering at the bottom of MZd (sub zone d of the Main Zone) are attributed to a new pulse of magma.

166 — Moshrif, Mohammad Abdulghany.
Sedimentology of the lower cretaceous rocks of central Saudi. Arabia. University of Wales, 1976.
446 p., illus.

Field and laboratory investigation of the Buwaib-Biyadh-Wasia Formations of the Mid-Cretaceous in central Arabia was carried out and a detailed lithofacies and sedimentological analysis has been produced. Stratigraphical logging and correlation, together with the field description of lithological characters, and sedimentary structures, have enabled the identification of facies variation and fining-upwards cycles and palaeocurrent vectors also have been determined where possible, mainly from planar cross-stratification. In addition, a continuous series of specimens was collected from each measured section for laboratory study. This involved both clastic and carbonate sediments, and included investigation of grain size distributions with vertical and lateral changes in textural parameters, together with studies of pebble-shapes and grain surface textural analysis. Moreover, the mineralogical composition and petrogenesis of the various rock types has been determined, including insoluble residues, heavy mineral separations, x-ray analysis of clay mineral components, and study of quartz inclusions and extinction types. Moreover, a detailed study of the complex diagenesis and cementation of both the clastic and carbonate sediments has been undertaken, and a synthesis of the paragenetic sequence

Three new species of larger Foraminifera are described and figured. These are **Lockhartia smouti** n.sp., **Discocyclina redmondi** n.sp., and **Operculina qaterensis** n.sp., It is interesting to note that **Discocyclina redmondi** n.sp., is the oldest known species of **Discocyclina.** This would indicate that the origin of the genus **Liscocyclina** occurred in the Arabian area.

165 — Mohandis, Ahmed Abd-Al-Kadir.
Mineralogy of the Kapalagulu layered Intrusion Tanzania, East Africa. Manchester University, 1977.
277 p. + plates + map.

The Kapalagulu intrusion is a layered sequence of ultrabasic and basic cumulates. It is long, narrow belt approximately 14.5 km by 1.6 km. It is located some 112 km, South of Kigoma town, Western Tanzania. The age of the intrusion is probably Precambrian.

The intrusion consists of three major zones ; the Basal, Intermediate and Main Zone. The Main Zone has been divided into five subzones.

Rhythmic layering is well developed in the Intermediate zone and the lower part of the Main Zone.

Adcumulate, heteradcumulate and mesocumulate textures are observed in the Kapalagulu rocks. A statistical approach has been adopted to examine the variation of modes and grain sizes of principal minerals with the height of intrusion and different variants including bulk rock oxides.

The cumulus mineralogy of the Kapalagulu intrusion is simple with olivine, plagioclase, Ca-poor and Ca-rich pyroxenes as the major minerals. Minor cumulus chromite occurs only in the Basal Zone, usually with immiscible sulphides and biotite. Cumulus ilmenite and apatite occur only in the upper layered series.

The record of fractionation is displayed in the 1,400 m sequence of the layered series (Fig. 4.1). The overall change in compositions of principal minerals from the base to the top of intrusion can be summarized as follows : olivine (Fo_{84} — Fo_{52}), chromite ($Fe^{3+}_{42.0}$ — $Fe^{3+}_{47.0}$), plagioclase (An_{88} — An_{75}), Ca-poor pyroxene ($Ca_{2.5}$ $Mg_{0.1}$

Then planktonic formainiferal assemblage zones are established for the first time from the subsurface. These zones are useful in correlating the Hiber strata with equivalent units over large parts of the world. These zones from the top down are :

Globigerapsis kugleri Zone

Acarinina bulbrooki Zone

Globorotalia aragonensis/Globorotalia formosa Zone

Globorotalia subbotinae Zone

Globorotalia Velascoesis Zone

Globorotalia pseudomenardii Zone

Globorotalia pusilla pusilla Zone

Globorotalia angulata Zone

Globorotalia praecursoria Zone

Globorotalia pseudobulloides Zone

The Eocene-Paleocene contact is drawn at the base of the **Globorotalia subbotinae** Zone, on the basis of the first appearance of **Pseudohastigerina wilcoxensis (Pseudohastigerina** datum) ; **Globorotalia elongata** (Glaessner) = **Globorotalia planoconica** (Subbotina) and the appearance of **Globorotalia subbotinae.**

The Cretaceous-Tertiary boundary is drawn at the base of the **Globorotalia pseudobulloides** Zone (lower Danian) and at the top of beds bearing a poorly preserved Upper Maestrichtian fauna. The **Globorotalia praecursoria** and the **Globorotalia pseudobulloides** zones are developed in the basal part of the Hiber strata and represent the Danian stage, and are Early Paleocene in age. The **Globorotalia uncinata** Zone of Bolli (1957m) is missing in Turaif either because of inadequate sampling or a local disconformity.

The **«Globorotalia» palmarae** and the **Hantkenina aragonensis** zones of Bolli (1957b) are included within the **Acarinina bullbrooki** Zone.

The Umm er Radhuma Formation ranges in age from Early Paleocene to Early Eocene.

Nine larger foraminiferal assemblage zones are established. These zones are useful in correlating various subsurface sections within the Umm er Radhuma in eastern Saudi Arabia. These zones from the top down are :

Miscellanea miscella Zone

Operculina qatarensis Zone

Discocyclina redmondi Zone

Lockhartia haimei Zone

Lockhartia smouti Zone

Lockhartia haimei suturadicata Zone

Lockhartia prehaimel Zone

Lockhartia haimei vermiculata Zone

Rotalia jacobi Zone

Planktonic and larger Foraminifera coexist within the **Discocylina redmondi** Zone, which allows correlation of this zone with the **Globorotalia pusilla pusilla** Zone and the lower part of the **Globorotalia pseudomenardi** Zone of Trinidad (Bolli, 1957b).

The upper two zones represent a regressive phase, and are of Sparnacian age. The paleocene-Eocene contact is drawn on top of the **Miscellanea miscella** Zone, while the Cretaceous-Teritary boundary is drawn at the base of the **Rotalia jacobi** Zone and at the top of beds bearing **Omphalocyclus macroporus** (Lamarck) and **Fissoelphidium operculiferum** (Smout.)

The Hiber strata of Turaif area, northwestern corner of Saudi Arabia, ranges in age from Early Paleocene (Danian) to Early Middle Eocene.

knowledge in this area, presented by Mitchell (1960) in a recent paper, showed that little research has been directed toward providing such knowledge in dense low water content clays. One of the reasons for this is that there are many difficulties involved in such a study. Among these difficulties are :

1. The large number of factors that affect thixotropic behavior of compacted clays, and the great complexity of interaction between these factors.

2. None of the existing theories seems to have been subjected to diagnostic laboratory experiments.

3. The lack of a simple technique for measuring thixotropy in compacted clays.

Therefore, it is the purpose of this thesis, first, to provide an insight into the phenomenon of thixotropy in compacted clays, by reviewing and evaluating previous work in this area ; and second, to extend the present knowledge in this area in three ways :

i) Developing a better understanding of the thixotropic behavior of compacted clays, by studying the effect of key soil parameters and test variables.

ii) Subjecting the present theories to diagnostic laboratory experiments, and determining how well they predict thixotropic behavior in compacted clays.

iii) Adapting a simple new «resonant column technique» for measuring thixotropy in compacted clays.

164 — **El-Khayal, Abd El-Malik Abd Allah.**
Planktonic & larger foraminiferal biostratigraphy of the uppermost cretaceous and lower tertiary formations of Eastern & Northwestern Saudi Arabia.
Rutgers University, 1969.

A study of the foraminiferal faunal assemblages in boreholes of the uppermost Aruma Formation, the Umm er Radhum Formation of eastern Saudi Arabia, and the Hiber strata of the northwestern corner of Saudi Arabia has led to the following results.

The most significant factors affecting thixotropic behavior of compacted clays were postulated on both theoretical grounds and on the basis of previous work reported in the literature. An attempt was then made experimentally to single out and study the effect of a few key variables such as clay type, water content, and molding water composition. The latter included not only the effect of different electrolyte concentrations but also the addition of small amounts of dispersant to the molding water. The effects of external variables such as the method and degree of compaction were also studied.

The term «Thixotropic Shear Ratio», that is, the shear modulus at time t divided by the shear modulus immediately after compaction, rather than the familiar term «Thixotropic Strength Ratio» (ratio between the ultimate strength at time t and the ultimate strength immediately after compaction), was used in order to permit an accurate comparison between the thixotropic hardening of different clays.

In addition to the thixotropy study itself, instantaneous dynamic shear modulus measurements were made on a large number of samples under varying compaction conditions, including different molding water compositions and water contents.

The «Net Energy of Interaction with a Secondary Minimum» as a possible explanation for thixotropic behavior of compacted clays was reviewed and evaluated. This concept, if valid, is very useful because it brings in the importance of electrolyte concentration, water content, and exchange capacity. The adequacy of this concept (with its simplifying assumption of a parallel plate system) to predict the effects of key variable such as water content and electrolyte concentration on the thixotropic behavior of compacted clays was also explored.

B) Reasons for this Study

As mentioned earlier, thixotropy can have important practical implications in low water content compacted clays. Thixotropy also plays an important role in high water content clay suspensions which are often used in engineering practice. For example, thixotropic clay-fluids are used in foundation operations, drilling, sinking of wells and caissons, and in driving piles.

It is, therefore, essential to have a basic knowledge of thixotropic behavior of clays over a wide range of consistencies. A review of

It is concluded from the field mapping and the mesoscopic fracture survey that the Central Arabian Graben and Trough System developed in an extensile stress regime generated in the platform sequence as a consequence of left-lateral shear along a deep-seated fault cutting the underlying Precambrian crystalline basement. Movement on this fault probably accompanied the oblique collision of the Arabian plate and Persian plate.

163 — Kashmeeri, Nouri Abd-Ellah.
Thixotropic behavior of compacted clays. University of Michigan, 1969.
xvii, 207 p. diagrams, maps.

A) Scope of Thesis

To the soil engineer, thixotropy or «age-hardening» signifies a reversible process in which the strength increases during a period of rest following a strength decrease during remolding both take place at constant water content (Mitchell, 1969).

Evidence reported in the literature shows that both remolded natural clays and compacted clays may exhibit appreciable increase in strength with time. Furthermore, the results of field observations emphasize that this increase of strength has very important practical implications to the soil engineer, namely in vehicle mobility problems, in piledriving operations, and in the placement of hydraulic fill dams and compacted earth embankments.

This research was designed to study the thixotropic hardening behavior of compacted clay soils by measuring the dynamic shear modulus of a soil as a function of time.

The dynamic shear modulus was determined by the resonant-column technique, using an apparatus developed by Hardin (1965), and described by Hardin and Music (1965). This apparatus applies a torsional vibration to a specimen of soil either enclosed within a triaxial cell or standing free. This approach has several advantages, viz., the test is nondestructive, very small shear strains are introduced, the shear modulus is a better index of thixotropic hardening than compressive strength, and a continuous record of shear modulus vs. time is made possible.

Dhruma-Nisah Graben System are discussed. It occupies an area of about 10,500 km^2 situated near Ar Riyadh. A detailed geologic map on a scale 1 : 100,000 is presented. An analysis is made of minor fractures which were investigated at 102 stations. The purpose of both aspects of the study was to investigate the relationship of the graben system to the tectonic evolution of the Arabian peninsula.

The Dhruma-Nisah Graben System is part of the Central Arabian Graben and Trough System, a fault zone, 560 km long, concave to the north-east, and consisting of numerous en-ehelon graben cutting a nearly horizontal platform sequence. Along the eastern and central part of the Dhruma-Nisah system, the en-echelon graben trend E-W, while towards the western end of the system, the trend becomes north-westerly and northerly. The graben are bounded by step faults and inwardly-facing monoclinal flexures. Displacements along the western faults of the system are mainly normal, whereas along the eastern faults, they are both normal dip-slip and sinistral strike-slip.

The mesoscopic fracture pattern consists of three distinct systems, all of which are orientated symmetrically with respect to the layering. The geometry of the systems is most conveniently described with beds restored to the horizontal. Each set in each system includes surfaces of different style, such as, joints, veins, and small-scale faults. Nevertheless, joints make up the majority of surfaces. System I is expressed by either a single extension fracture set, or by one of two systems of conjugate low dihedral angle surfaces, which possibly belong to the shear-extension fracture transition. At a few localities close to graben margins, one of these systems comprises minor extension faults enclosing a dihedral angle of 60°. The trends of the single extension set and of the two conjugate inclined sets, as well as that of the acute bisectrix between the two conjugate vertical sets, are parallel to graben trends. Surfaces in System II are usually developed in blocks bounded by bedding planes and surfaces in System I. They form either a single extension set or two conjugate sets of vertical fractures enclosing a low dihedral angle. The trends of the single set and of the acute bisectrix between the two conjugate sets are always perpendicular to graben trends. Surfaces in System III form two conjugate vertical sets enclosing an angle of nearly 90° symmetrically about graben trends. Surfaces in Systems I and II were probably formed by extension while those in System III are probably shear fractures.

ded either by F^2 or F^3. Trondhjemite dikes and sills out across the primary and possibly secondary foliations, but display incipient foliation ; therefore, the tronhjemite probably is post-F^2, pre-F^3 in age.

Tentatively, F^1 and M^1 are correlated with the Taconic orogeny, F^2 and M^2 with the Acadian orogeny, and F^3, F^4 and M^3 with the Alleghenian orogeny.

161 — **Al-Furaih, Ali A.F.**
Upper cretaceous & lower tertiary ostracoda (superfamily cytheracea) from Saudi Arabia. University of Leicester, 1976.

Ostracoda from the Upper Cretaceous and Lower Tertiary from five wells in Saudi Arabia have been examined. The Superfamily CYTHERACEA is studied in detail. It is represented by seventy-five species. Of these, seventy-one are new, one has been estabilished by Siddiqui (1971), one by Al-Furaih (1975) and two are left under open nomenclature.

Six new genera — **Clinocythere, Hapsicytherura, Holcopocythere, Phyrocythere, Rhostocythere** and **Schizoptocythere** — and two new subgenera — **Otarocythere** and **Prophalcocythere** — are described.

A modification of the Liebau diagram for the analysis of the ornament has been adopted.

The Upper Cretaceous and Lower Tertiary formations from two wells (Abqaiq W—69 and El-Alat W—1) are divided into five ostracod biozones and a correlation with the previously established foraminiferal zonal scheme for the Umm er Radhuma Formation is discussed.
All the evidence indicates that the Aruma and Umm er Radhuma Formations were deposited in a shallow water, mainly carbonate, environment.

162 — **Kadhi, Abdullah.**
Structural analysis of the Dhruma-Nisah graben system control Saudi Arabia. University of Bristol, 1976.
xvii, 280 p. + plates.

The results of a field mapping programme and a survey of mesoscopic fracture systems in Mesozoic and Cenozoic rocks cut by the

ments in calcite-anhydrite layers. The halite-anhydrite layers, however, exhibit low and fairly steady concentrations with only minor fluctuations. Potassium and iron concentrations are much lower than strontium and magnesium concentrations in the same sample.

The time-series generally depict climatic oscillations of roughly 50, 100, 150, and 350 years, resulting from alternating environmental changes within or outside the basin.

160 — **Dabbagh, Abdullah Eassa**
Geology of the skyland and Dunsmore mountain quadrangles, Western North Carolina. University of North Carlonia, 1975. 288 p., illus. Append.

Blue Ridge rocks, occupying 85% of the area, are composed of Precambrian layered gneisses, migmatite, and Upper Precambrian metasedimentary units. The latter are composed of migmatitic gneiss and schist mica gneiss, garnet mica schist, paragneiss and metagraywacke, and mica schit. Intrusive into the Blue Ridge rocks are an ultramafic body, felsic gneiss, trondhjemite and pegmatite. Brevard zones rocks are schist and plyllonite, marble, porphyroclastic mylonite and blastomylonite. A small portion of the area consists of cataclastic Henderson gneiss representing Inner Piedmont rocks.

Structural analysis and textural study reveal a complex polydeformational, polymetamorphic, Paleozoic history of rocks in the map area. Four consecutive phases of folding (F^1, F^2 F^3, and F^4) are recognized at the mesoscopic, microscopic and macroscopic scales.

Two distinct metamorphic events are associated with F^1 and F^2; a third dislocation event of local extent is associated with F^3 and F^4. The earliest progressive regional event (M^1) outlasted F^1 and attained the sillimanite grade. The second progressive event (M^2), suggested by new mineral growth, outlasted F^2 and reached the staurolite grade. Two retrogressive metamorphic events (M^1R) and (M^2R) occurred after M^1 and M^2 respectively. Evidence for M^1R is largely masked by later events while M^2R is represented by typical retrograde metamorphic assemblages.

Felsic gneiss, a slightly foliated igneous body intrudes Blue Ridge rocks across the primary foliation ; therefore, it is post-F^1, but is fol-

159 — **Billo, Saleh Mohammad.**
Petrology and Geochemistry of varved halite II member, permian castile formation, delaware basin, Texas and New Mexico.
The University of New Mexico, 1973.
xi, 100 p. .. plats.

The Halite II Member of the Permain Castile Formation in the Delaware Basin of Texas and New Mexico constitutes a 1778-year record of evaporite laminations. They are composed of rhythmic halite-anhydrite layers interrupted by four distinct carbonate-laminated beds of anhydrite. The average thickness of the varves is 2.3 cm for the halite-anhydrite couplets and 3.9 mm for the carbonate-laminated anhydrite couplets. They are correlative over distances of 70 miles (113 km).

Halite occurs either as hopper crystals, grains, or as compact masses with many inclusions, bubbles, and vacuoles. Matrix crystals, rectangular crystals, nodules, and laths are the main petrographic types of anhydrite. Calcite occurs as ovoid grains with rhomboherdral cleavage. Pyrite, zircon, and magnetic particles appear as minor accessory minerals. Most halite laminae have become a recrystallized. Textural relationships indicate that halite has partially replaced anhydrite. Other diagenetic events of lesser importance show partial dolomitization of calcite and subsequent partial replacement of dolomite by anhydrite.

Unit-time sampling and analysis furnished a means to measure the true associations of the various components at different frequencies of change within the system. The continuous record has been resolved into parallel and independent time - series of halite, calcium sulfate, calcium carbonate, organic matter, magnesium, strontium, potassium, and iron.

Correlation of time-series for major components indicates little association among the rates of halite, calcium sulfate, and calcium carbonate deposition on a long-term basis. There are frequent cessations of halite deposition with litttle or no change in carbonate and sulfate deposition. Organic matter shows no correlation with other components.

Analyses for magnesium, potassium, strontium, and iron reveal definite positive associations among the concentrations of these ele-

suggests that large quantities of kaolinite are transported to the area from North Africa by this means.

1 m. cores taken from lakes Windermere and Esthwaite (Cumbria, U.K.) show a remarkable similarity in clay mineralogy both laterally and with depth. Chlorite and illite constitute $\sim$ 60% and $\sim$40% respectively of the $< 2\ \mu m$ fraction, representing the weathering products of ancient volcanic rocks and glacial drift deposits. Glacial clays have a well crystalline vermiculite content. Much of the fine material reaching the lake bottom is organic debris, but major inputs are from the feeder rivers, with some runoff from the lake sides detectable, particularly silt grade quartz.

Well crystalline illite, chlorite and kaolinite characterise the clay fraction of sediments from the River Carnon (Cornwall, U.K.). Illite represents $\sim$47%, chlorite $\sim$ 31% and kaolinite $\sim$ 22% of the clays. The tributaries draining the Carnmenellis granite and adjacent lands have a preponderance of kaolinite.

Sediments collected from the Orange River, its delta and adjacent marine areas (S.W. Africa) were studied for their clay mineral, major element and halmyrolytic characteristics. Montmorillonite $\sim$ 54% and illite $\sim$ 35% dominate the $< 2\ \mu m$ fraction and there are only minor differences between clays from the different environments. Eolian dusts and marine particulates from adjacent areas are significantly poorer in montmorillonite than are the sediments. The South African continent supplies large amounts of montmorillonite to the South Atlantic, but apparently not via eolian dusts. Again the fresh water, delta and marine samples cannot be distinguished on their major element content, although minor changes in mineralogy are reflected in the chemistry. The cation exchang capacities of the clays were determined, and differences between exprimental and calculatd results may be due to the blanketing effect of iron oxide grain coatings. River clay C.E.Cs. average 69.5 mequit/100 g. and marine clays 64.2 mequit/100 g. Exchangeable cation contents are broadly similar in the samples analysed and halmyrolytic effects are not pronounced. Exchangeable sodium in marine sediments off the Orange River is increased, but is depleted offshore from the Buffels River. $\sim$ 50% of sodium and $\sim$ 8% potassium is present in exchangeable lattice sites in marine clays compared to $\sim$ 60% and $\sim$ 6% in river clays.

which lies south of Kilchearen bay and Braichliddich. The rocks consist of acid and basic gneises of probably igneous origin. The Torridonian Conglomerate, slate and grits from the northern and largest portion of the western part.

The whole of the eastern section of Islay is composed of metamorphosed Oalradian rocks. These consist essentially, of pre-campprian metasediments, namely quartzike, limestone, slates and phyllite and showing varying degrees of metamorphism. The Dalradian rocks of Islay tectonically overlies Moinian Quartzite (Bowmore sandstone)

158 — Behairy, Abdel-Kader Ali
Clay minerals in recent sedimentary environments. Liverpool University, 1975.
xvii, 238 p.

A study has been made of the clay mineral content of eolian dusts, marine particulates and recent marine, estuarine and freshwater deposits in order to facilitate the interpretation of their sources, transportational and depositional environments.

Various X-ray diffraction techniques were assessed and an optimum method derived to investigate the $< 2\ \mu m$ fraction of sedimentary material. An inter-laboratory calibration study was also carried out in order to compare the author's analytical techniques with those of other workers in this field. The results indicate a broad similarity of sample preparation, analytical procedure and diffractogram interpretation methods.

Suspended solids from surface sea waters from the Eastern Atlantic Ocean and China Sea were analysed for their clay mineral content. Relative concentrations of each clay vary with latitude in Atlantic samples, with illite and kaolinite reflecting a totally contintal detrital origin. China Sea particulates show early stage soil weathering products with dominant illite type minerals.

The mineralogy of eolian dusts is compared to that of eastern Mediterranean sediments, and it is shown that wind-borne material varies in content and concentration both geographically and seasonally. South of Cyprus, the eoilan contribution to the marine sediments

The second area of the island extends from Rhuvaal point in a south-south easterly direction, to the Hall of Oa and is bounded on the east by the Sound of Islay and on the south by the Atlantic Ocean. The maximum elevation, of 1500 feet above sea level, is found in two places Beinn Bheigerir along the Sound of Islay and Beinn Bhann about 2.5 miles to the west of Beinn Bheigeir. The elevation decreases gradually in the southern region along a line going from the Sound of Islay to Port Ellen (50 feet) passing through Beinn Bheigeir (1500 feet) and Beinn Uraraidh (1490 fet) it rises again in the Oa at Beinn Mhoor (600 feet).

The above-mentioned area forms the water shed of the southern part of Islay. The many streams running down the slopes feed the rivers to the west and south-west. These rivers, and their tributaries, are of great importance in the geological study for they cut through the rock, exposing good cross sections particularly in the south and south-west of the island. The longest of these rivers are : The Laggan and its tributary, the Kilennan, the Duch, the Torra and the Machry; the latter flows out from Loch Uigeadail and Loch Leathuin on Syorra.

1.3 **Terrain** : The terrain in the northern part of Islay consists usually of alluvial land, where as in the south-west peaty area, together with smaller pockets of agricultural land are found. To the west, the slopes of Beinn Bhann area, boggy and have been recently drained by the Forestry Commission and planted with trees, in Kildalton the forest covers the southern-most part of the Island.

1.4 Geology of Islay :

General setting : The island of Islay may be divided into two portions, the Rhinns (western area) and the eastern area. The western area comprises the whole of the portion of the island known as the Rhinns of Islay together with the belt west of Loch Skerrols thrust lying round the head of Loch Indaal. It is separated geologically from the eastern area by the Skerrols Thrust, which follows a sinuous southwards course from Banan Uillt, on the east shore of Loch Gruinarl, it crosses Loch Skerrols, and then passes to the east of Bridgend by Tallent farm, which it is folded and faulted by a normal fault. Beyond this point its course is concealed under superficial deposits, but probably continuous to the shore of Laggan bay.

The western area is entirely occupied by rocks of pre-cambrian age, the Lewsian Gneises occupy the western portion of the Rhinns,

156 — **Bakar, Abdul Razak.**
Jabal Al Wasq ; a precambrian basic and ultrabasic igneous complex in the Northern Hijaz of Saudi Arabia. University of Leeds, 1973.
184 p. + plts.

The Jabal Al Wasq area lies in the north-eastern part of the Arabian Shield and consists of Eocambrian igneous, volcanic and sedimentary formations many of which are similar to rocks of ophiolite sequences elsewhere. In Saudi Arabia an ophiolite belt extends intermittently NW-SE across the Arabian Shield separating essentially granitic terrain on either side. It is suggested that this ophiolite belt represents the remants of late Precambrian oceanic lithosphere caught between two continental plates which collided c. 600 m.y. ago.

In the Jabal Al Wasq area the lowest rocks are a sequence of markedly serpentinized layered ultramafic plutonics which are conformably overlain by gabboric rocks, a spilitic and keratophyric volcanic sequence and a series of marine sediments. Basic dykes cut most igneous sequences. Although the entire area has been markedly affected by subsequent deformation, both the type of succession, the thickness of the individual units, and their relation one to another is considered to be entirely in keeping with the interpretation that this area represents a fragment of Eocambrian oceanic lithosphere.

157 — **Basahel, Ahmed Nasir.**
The Dalradian stratigraphy and structure of southern Islay Argyll. The University of Liverpool, 1971.
117 p. plats., illus., maps. 30 cm.

1.1 **Location** : The Island of Islay is situated on the south coast of scotland, and forms part of the Country of Argyilshire. It occupies an area of about three hundred and eighty four square K.M. and is of great scenic beauty.

1.2 **Geographology** : On a geographical basis Islay is divided into two distinct areas which are separated by Loch Indaal and Loch Grunnant. The western area known, as the Rhinns of Islay, extends as a peninsula from Ardmore point in the north to Rhinns point in the south. The land rises gradually inland the highest point being Beinn Tart a' Mill, at 735 feet above sea level.

In der Nähe des Rheines liegen die vulkanischen Hügel des Limberges, des Lützelberges und von Breisach, die durch quartäre Alluvionen vom Kaiserstuhl getrennt sind. Der Kaiserstuhl ist zum größten Teil von Löß bedeckt. Die Dicke der Lößbedeckung beträgt maximal 30 m. Nach WIMMENAUER (1963) läßt sich der Kaiserstuhl in folgende drei Haupteinheiten unterteilen :

a) Der sedimentäre Sockel im Osten, dessen flach gewölbte Obesrfläche die Unterlage der Effusivgesteinc bildet. Am Kontakt mit den subvulkanischen Gesteinen der Einheit c) sind oligozäne Schichten des Sockels kontaktmetamorh verändert worden.

b) Der eigentliche Kaiserstuhlvulkan, der aus vielfach wechsellagernden Laven, Agglomeraten und Tuffen aufgebaut ist.

c) Das subvulkanische Zentrum, bestechend aus Gängen und größeren Intrusionen von verschiedenen Eruptivgesteinen und Karbonatiten. Gänge und Phonolithstöcke treten auch außerhalb des Zentrums in den Einheiten a) und b) auf.

Der in der Mitte des subvulkanischen Zentrums liegende Badberg wird zur Hauptsache aus Karbonatit sowie älteren intrusiven Phonelithen gebildet.

Am Südhang des Badberges tritt **Ledmorit** in Form einer Kleinen Intrusion (30 × 40 m) zutage. **Sodalithsyenit** tritt ebenfalls als Einlagerung im Karbonatit am Südfuß des Badberges auf.

Die **Ganggesteine** der **phonolithischen** Familie häufen sich im zentralen Kaiserstuhl. Am Südhang des Badberges streichen sie ONO bis OW. Sie durchsetzen fast alle älteren Gesteine des Kaiserstuhls : Die intrusiven phonolithischen Gesteine, die essexitischen Gesteine und ihre Gangäquivalente, die Ledmorite, die subvulkanischen Breccien und die Hauptmasse der Karbonatite.

Zwischen Badberg und Vogtsburg am Südhang des Badberges ist Essexit aufgeschlosen. Die Aufschlüsse zeigen, daß der Essexit dort jünger als die intrusiven Phonolithe ist (WIMMENAUER 1959).

Am Horberig, der westlichen Spitze des Badberges, kommen zahlreiche Gänge der essexitisch-phonolithischen Familie sowie Gangkarbonatite vor.

ing and exploration in the Northern Western Desert of Egypt are also given.

To achieve these aims, 23 wells were studied for the present work, namely, NWD 310-1, Razzak-1, NWD 343-1, WD 12-1, Rabat-1, WD 8-1, WD 7-1, WD 5-1, Mubarak-1, Wadi Khadish-1, WD 33-1, WD 32-1, WD-34 VH-1, Abu Gharadig-3, El Kheit-1, El Gindi-1, Abu Sennan-1, WD-57 VH-1, South West Mubarak-1, Agnes-1, Missawag-1, Wadi El Raiyan-1 and Diyur-1.

To construct the different stratigraphic maps, nearly all wells drilled in the Northern Western Desert of Egypt (82 wells) were adequately analyzed. Coincidentally, the distribution of the wells is in such a manner that gave a good coverage of almost all the characters of the Eocene rocks in the area.

The present thesis comprises four parts : Part 1, is concerned with the lithostratigraphy ; Part II includes the petrological studies; and their interpretation ; Part III deals with the geochemistry ; Part IV is devoted to the appraisal of stratigraphic maps for the Eocene rocks in the area.

Discussion of the environment of deposition, diagenesis and origin of the rocks is given in different parts of the thesis.

155 — **Bakhashwin, Mohamed**
Petrographische und geochemische untersuchung der Silikatischen gesteine Aus der Forschungsbohrung Kaiserstuhl 1970.
Freiburg, 1975.
99 p. + plates.

1.1 Geologischer Aufbau des Kaiserstuhls

Der Kaiserstuhl liegt im Oberrheingraben, etwa 15 km nordwestlich von Greiburg im Breisgau. Das Kaiserstuhlgebirge hat einen rhombischen UmriB. Die längere Achse dieses Rhombus erstreckt sich 16 km in der Richtung SW-NO. Am breitesten ist der Kaiserstuhl in Richtung SO-NW mit 12,5 km. Der Umfang ist 43 km ; die Grundfläche beträgt 92 km². Der zentrale Kaiserstuhl bildet einen hufeisenförmigen, nach Westen geöffneten Kamme, der am Totenkopf 557 m erreicht (Abb. 1).

El Hinnawi and Loukina (1971) studied the chemistry of 80 carbonate samples from different localities along the Nile Valley (mainly of Eocene and Cretaceous ages). They discussed the distribution of calcium and magnesium in the different rocks. The distribution of alkali metals, manganese, titanium and phosphorous was also studied.

Khadr (1972), studied the mineralogical, petrological and geochemical studies on the Eocene section of Drunka, Assiut district.

El Hinnawi and Loukina (1972) carried out a preliminary study of the distribution of strontium in Egyptian carbonate rocks of Cretaceous to Upper Eocene age. A marked increase in the Sr/Ca ratio from Cretaceous to Late Eocene has been observed in the Egyptian carbonate rocks. This increase is in harmony with the general trend of increase in Sr from Proterozoic to Tertiary found in other parts of the world.

El Hinnawi and Loukina (1974) carried out further studies on the geochemistry of Egyptian carbonate rocks of Precambrian to Recent ages. A special study of the pattern of distribution of calcium, magnesium ; the water-soluble cations and anions, strontium and lithium has been carried out. The variation in the distribution of these elements in time and space has been outlined.

Kholief (1974, 1975), carried out a generalized work on the structure and petrography of the subsurface carbonate rocks of Eocene age in the North Western Desert. He studied 16 wells and recognized some microfacies associations in the Eocene. He also determined the amount of Ca and Mg in a number of samples and calculate the presentage of Eocene and water.

Salem (1976) carried out some studies on the evolution of Eocene Miocene sedimentation patterns in parts of Northern Egypt.

Despite the fact that much has been written on the geology, stratigraphy and paleontology of the Eocene rocks in Egypt, no detailed petrological and geochmical studies have been previously carried out on the subsurface Eocene rocks of the Western Desert of Egypt. Hence the aim of the present thesis is to present the results of such detailed work. In addition, an appraisal of stratigraphic maps of the Eocene as well as the evaluation of the Eocene rocks for petroleum prospect-

tectonism, associated with magmatic activity affected considerably the older rocks and created various structures of large magnitude.

Hence, a good understanding of the sedimentologic and tectonic behaviour of Egypt between these two phases of intense tectonism, as well as the paleogeographic and paleogeologic changes associated with this transition will, if appropriately clarified, contribute to the understanding of the geoglogic evolution of Egypt from the Late Mesozoic to the Early Tertiary.

The Eocene rocks in Egypt are mainly represented by highly fossiliferous limestones and shales. This has long attracted the attention of paleontologists and biostratigraphers among whom we can mention : De la Harpe (1883) ; Zitte (1883) ; Fourtau (1897) ; Beadnell (1905) ; Blanckenhorn (1900, 1902, 1921) ; Chapman (1900, 1902); Fourtau (1912, 1916) ; Hume (1911, 1965) ; Cuvillier (1924, 1930, 1933, 1935) ; Faris (1947) ; Nakkady (1950, 1959) ; Said (1950, 1958, 1960, 1962, 1968 1971); Abbass (1953) ; Ansary (1953); 1955, 1956) ; Ansary and Ismail (1956,, 1963); Bishay (1953, 1961, 1966); Shata (1953): Ismail (1956) ; El Shazly (1959) ; Kostandi (1959); Said and Martin (1964); Krasheninnikov and Ponikarov (1964) ; Soliman, Faris and Hassan (1965) ; El Dakkak (1966) ; El Dawoody (1966) ; El Naggar (1966b, 1970) ; Abdel Malik (1967) ; Abdel Aziz (1968) ; Gnanima (1968) ; Andrawis (1970) ; Boukhary (1970, 1973) ; Hafez (1970) ; Samyel (1970) ; Abdel Kareem (1971) ; Kenawy (1972a) ; Mohamed (1972) ; Shama (1972) ; El Baradei (1975).

Beside these stratigraphic and paleontologic studies, a few petrologic and geochemical studies have been carried out on the Eocene rocks of Egypt.

Soliman (1954), Faris and Soliman (1954) and Faris and Soliman (1961) studied the petrology of the dolomite rocks of Abu Roash and adjacent localities and its consideration to the possible petroleum reservoirs in other parts of Egypt.

Ghorab and Ismail (1957), studied the microfacies of the Eocene and Pliocene east of Helwan.

Hassan (1966), studied the petrology of the Eocene limestone in some northern parts of Egypt and its evaluation for petroleum prospecting.

2. **Deuxième partie.**

— Les résultats des analyses des échantillons prélevés dans différents points — diffractométrie, granulométrie et géochimie, avec description de la situation géologique et une coupe pour chaque région.

— Trois tableaux établis pour chaque région : l'un résume l'analyse minéralogique, l'autre l'analyse granulométrique, quant au troisième, il résume l'analyse géochimique.

3. **Troisième partie.**

— Conclusion générale des résultats trouvés dans la deuxième partie à partir des différentes analyses.

— Une brève discussion sur l'homogénéité et l'origine des minéraux argileux ; les relations entre les minéraux argileux et le faciès.

— La paléogéographie de notre région pendant cette période.

154 — **El-Araby, Nizar Ahmed**
Petrology & Geochemistry of subsurface eocene rocks in the Western Desert of Egypt A.R.E. Al-Azhar University, 1976.
x, 267 p. + Tables. + Fig.

The name «Eocene» was prosposed by Charles Lyell (1833) from the Greek roots meaning «dawn of the recent». However, the basal part of this Eocene series has been treated separately as the Paleocene series (Schimper, 1874). Consequently, two distinctive series have been recognized at the dawn of the Cenozoic Era, the Paleocene followed upwards by the Eocene.

The Eocene rocks are widely distributed in Egypt and cover about one fifth of the area of exposed sedimentary rocks. This series is one of the most prominent series in the Egyptian stratigraphic column. Its importance lies in its nature as a transitional period between two different tectono-environmental conditions. Those of the Late Cretaceous, in which tectonic movements led to pronounced paleotectonic variations and those of the Oligocene Miocene periods in which

153 — **Abdalla, Alshamlan.**
Etudes granulometriques, mineralogiques et geochimiques d'argiles du trais superieur du bas-languedoc et de la Bordure Meridionale du causse du larzac. Academie de Montpellier. Universite des Sciences et Techniques du Languedoc, 1972.
49 p.

1. — BUT DE CE TRAVAIL.

L'objet de ce travail est l'étude des dépôts argileux qui se sont constitués pendant le Trais supérieur dans les régions du Languedoc et du Sud du Causse du Larzac.

Ce travail expose les résultats des analyses minéralogiques, granulométriques et géochimiques sur ces sédiments argileux.

L'utilisation de ces résultats a permis de dégager une interprétation sur :

— L'origine des minéraux argileux

— Les faciès et les milieux de ces dépôts

En conclusion, nous avons essayé de grouper les résultats de différentes analyses dans les différentes régions pour esquisser la paléogéographie de la région pendant cette époque (le Trias supérieur).

II. — PLAN DU TRAVAIL.

Nous avons divisé ce travail en trois parties :

1. Première partie.

— Elle contient la limite stratigraphique du Trais supérieur et les définitions des différents types d'argiles sédimentaires.

— Les techniques et les méthodes utilisées dans ce travail.



GEOLOGY



typhimurium LT2 has been investigated. Piliation is determined by sex factors, and two of these, the fi+ R factor (conferring transferable antibiotic resistance) and the F factor, were studied.

Phage P22-mediated transduction of the R factor R381 in **S. typhimurium** yielded four classes of antibiotic-resistant transductants ; all of these were defective in conjugational transfer of their resistance traits. After acquisition of the F factor 14% regained the ability to transfer drug resistance by conjugation. Transfer of drug resistance from the fertile transductants to Hfr strains of **E. coli** in most cases led to loss of piliation (sensitivity to male-specific phages). It is concluded that the F factor contributes transfer functions which were lost on transduction, but that the R factor continues to synthesis a repressor of piliation.

Fifty three derepressed mutant R factors were isolated. One or more of four criteria for derepression ; sensitivity to male-specific phages, autoagglutination, adsorption of ^{32}P-R17, and a high rate of R transfer were found to apply to bacteria carrying each mutant R factor. The derepression was metastable for some of the mutants but this could be host-determined, and not a result of back mutation. In stable hetero R+ +diploids all the mutations were recessive and were therefore classified as repressor-negative. No repressor-insensitive mutants were detected.

Three derepressed mutant R factors were recognised in an **E. coli** Hfr strain. These mutants did not repress F-function, but failed to confer sensitivity to male-specific phages on F^- strains. It was concluded that each of these R factors produces an altered repressor which is active on R but not on F.

Methods designed to enrich for repressor-insensitive mutant R factors were employed. Difficulties in their application, resulting from plasmid recombination and mutual exclusion, were encountered.

Phage P1 lysed K12 **recA** and **E. coli** B strains only if the host used for its propagation carried a derepressed R factor. A phage modifying system, mediated by the R factor, and tranfere functions are possibly controlled by the same repressor.

151 — **Marghalani, Yousif Abdul Mannan.**
Some studies in biological chemistry ; antifungal phenyl esters and water-Insoluble derivatives of Enzymes. University of Birmingham - Department of Chemistry, 1971.
183 p. Plts.

A series of new O-acryloyl esters have been synthesised having potent antifungal activity. The most active compounds include 2,4-dichlorophenylacrylate and methyl 3-chloro-4-acryloxy benzoate. The basic requirements of this activity are an acrylate ester of a phenol in which the aromatic nucleus is substituted with electron withdrawing groups (e.g. chlorine) to such a degree and at such places that sterechemically the approach to the O-acryloyl ester moiety is not hindred. A theory of how such derivatives may derive their biological activity has been proposed.

New solid phase enzyme derivatives have been prepared by reaction of (a) pullulanase (b) dextranase (c) carboxypeptidase severally with the diazonium salt derived by treatment of p-aminophenoxyhydroxypropyl cellulose with nitrous acid. Unreacted diazonium groups were annealed reaction with β -naphthol. The enzyme activities displayed by the insoluble enzymes compared with the activity of the corresponding amount of soluble enzyme protein were found to be 14.1% for pullulanase and 15.6% for carboxypeptidase bound to the cellulose derivative. The thermal stability of all three enzymes in the insoluble form was many times that of the corresponding soluble enzyme at the same temperature. A milder method of reducing p-nitrophenoxyhydroxypropyl cellulose has been developed which has also been found suitable for preparing the corresponding ether of amylose.

Enzyme reactors were obtained by reacting carboxypeptidase and a-chymotrypsin with the affinity support agarose- a -amino caproyl-D tryptophan methyl ester. These insoluble enzyme derivatives were regeneratable and were usable over a range of pH and ionic strength without loss of enzyme activity.

152 — **Al-Sowaygh, Ibrahim Abdul Karim.**
Piliation and fertility of Enteric bacteria carrying R and F. factors. The University of Southampton-Department of Physiology and Biochemistry, 1971.
vii, 202 p. 30 cm.

The control of piliation in **Escherichia coli** K12 and in **Salmonella**

BIOCHEMISTRY

150 — Alyousef, Saad.
Die Beeinflussung biochemischer Prozesse-durch D-und L-Penicillamin bei therapeutischen dosen. Goethe Universitat, 1976.
65 p.

In der vorliegenden Arbeit wurde die Beeinflussung einiger biochemische Prozesse durch D- und L-Penicillamin untersucht.

Die orale Verabreichung von D- und L-Penicillaminen im Futter führt zu einer unterschiedlichn Hemmung der RNS- Biosynthese in Rattenleber, -milz und -gehirn.

L-Penicillamin lie β bei diesen Versuchen eine dosisabhängige Hemmung der RNS-Biosynthese in Rattenleber, -milz und -gehirn erkennen, wobei die Hemmwirkung in Leber am stärksten war. Aus den Zeitverschen geht hervor, da βdie Hemmwirkung des L-Penicillamins bei der RNS-Biosynthese in der ersten Woche am stärksten ist. Setzt man die Fütterungsversuche fort, so nimmt die Hemmwirkung nach 2—4 Wochen graduell ab. Im Gegensatz zu L-Penicillamin war die Hemmwirkung von D- Penicillamin sehr gering. Jedoch wurde auch bei diesen Unte - suchun eine Zeitabhängigkeit beobachtet, trotz der geringen Hemmwirkung des D-Penicillamins.

Inwieweit sich die Hemmwirkung der beiden Penicillaminarten bei der Proteinbiosynthese auswirkt, haben wir im zweiten Teil dieser Arbeit untersucat. Patel Wurde gezeigh, da β die Beeinflussung der Proteinbiosynthese durch D- und L-Penicillamin sowohl qualitativ als auch quantitativ etwa ähnlich verläuft wie bei der RNS-Biosynthese. Das wichtigste bei diesen Ergebnissen ist jedoch, da β D-Penicillamin bei den Mäuseknorpeln eine sehr strake Hemmung der Proteinbiosynthese aufweist.

Dagegen, wie auch bei den Versuchen fer RNS- Biosynthese zu sehen war, wurde die Proteinbiosynthese in Leber, Milz und Gehirn von D-Penicillamin kaum beeinflu β t.

A series of compounds of general formula $Na_2AS_2.8H_2O$ (A = Zn, Hg, Pb, Ni) was isostructural with $Na_2WS_4.16H_2O$ and $Na_2MoS_4.16H_2O$. A three-dimensional analysis of the structure of the tungsten compound was initiated but could not be completed in the time available; certain features of the structure have, however, been deduced.

Single-crystal studies on the unit cells of $HgIn_2S_4$, $CsTaS_3$, $Na_6Al_2S_6$ and $Na_3PS_4.8H_2O$ have also been completed.

All these results are related to a general survey of the structures exhibited by ternary sulphides, selenides, and tellurides, which prefaces the experimental, part of the thesis.

CRYSTALLOGRAPHY

149 — **Melibary, Salem Ahmed.**
Studies on the preparation and crystal sturctures of some ternary chalcogenides. University of Sheffield — Dept. of Chemistry, 1967.
V, 167 p.

Ternary chalcogenides, some of them new, have been prepared by a variety of methods, and studied by X-ray diffraction procedures. In many cases single crystals have been grown and investigated and in a few instences extensive structural analysis has bee undertaken.

Many chalcogenide structures are based on close-packing of the large chalcogen ions and may give rise to polytypism. Several of the compounds studied have given anomalous singlecrystal diffraction patterns attributable to this phenomenon. The polytypism has been noted but not analysed in detail.

Accurate values for the unit cell parameters of $LiBiS_2$, $NaBiS_2$, $KBiS_1$, $RbBiS_2$, $CsBiS_2$ and $NaBiSe_2$ have been obtained by least-squares analysis of powder diffraction data.

Single-crystal studies were made on thirteen compounds of the type $A^{I}\ B^{III}X_2$ where A = an alkali metal or silver, B = Ga, In, or Tl and X = S or Se, including the hitherto unknown sulphides $KTlS_2$ and $RbTlS_2$. A number of these compounds gave anomalen single-crystal diffraction patterns attributed to polytypism. Unit cell dats was obtained, and extensive three-dimensional crystal structure analysis was undertaken for the two products $LiGaS_2$. The former proved to have a disordered sturcture closely related to that of enargite and the parameters were refined to R = 0.108. The latter was not completely solved, but the salient features were resolved.

Standard porphyrins and petroporphyrins have been derivatised and analysed by gas chromatography. Mass spectrometric studies of the collected GC fractions of the derivatised petroporphyrins of Boscan indicated that the two main series were present and extend over wider molecular weight ranges than previously reported. Other series which occurred at two and four mass units higher than those corresponding to Aetio-type molecular ions were also detected. Aetio-type isomers were more abundant than those of the DPEP-type.

The two major structural-types have been separated by thin-layer chromatography. Each series has been further separated into a number of components of different polarity. Hence, the components may contain different structural features, possibly associated with the nature and location of the alkyl substituents, whilst retaining either the Aetio or the DPEP-structure overall.

Laboratory thermal alteration of a porphyrin, alone or in the presence of an n-alkane, resulted in the production of porphyrin molecular ions similar to those found in samples from the geosphere. Thermal alteration of the same porphyrin in solutions of crude oils produced a new Gaussian distribution of molecular ions. The crude oils themselves already contained petroporphyrins greatly in excess of the added porphyrin and the former increased in molecular weight range and in the ratio of Aetio to DPEP type.

Chlorophyll and hemin have already been postulated as possible precursors of petroporphyrins. This theory and modifications thereof, are discussed in the light of the results obtained for the molecular weight ranges and Aetio to DPEP ratios obtained for the petroporphyrins from the above sources. Suggestion for future studies have been stated.

mation afforded the pure isomer. Equilibration was studied by conventional kinetics at ambient temperature and by the DNMR method on the same sample at high temperature. The activation parameters are discussed in terms of substituent effects which indicate that N-alkyl imines interconvert by a planar inversion mechanism (in the absence of acid). The rate of E—Z isomerization in the imines investigated were extremely sensitive to trace acidic impurities in the sample. A drastic rate retarding effect was observed for N-pentamethylbenzylidenemethylamine in t-butand containing traces of potassium t-butoxide. Base catalysis was also observed for N-[1-naphthyl) ethylidene] methylamine in the presence of traces of potassium t-butoxide.

CHAPTER V deals with geminal anisochronism in some C-aryl alkyl imines containing prochiral substituents. Two classes of imines have been studied, the first is derived from alkyl 1-naphtyl ketones and the second from 2-substituted 1-(phenyl) ethanones. Slow rotation around the aryl-imino bond is responsible for the observed non-equivalence of the geminal groups. The magnitude of the ^1H anisochronism of N-[2-methyl-1-(1-naphthyl) propylidene] benzylamine showed unusual pronounced temperature and solvent dependence, while ^{13}C anisochronism was not affected by temperature.

148 — Alturki, Yousif Ibrahim Alsulaiman.
Analysis of petroporphyrins. University of Bristol, 1972.
V, 344 p. illus.

A scheme has been developed to isolate a pure single petroporphyrin from geological materials. Although this object has not been achieved, metal-free petroporphyrins have been isolated from Boscan and La Paz crude oils, Green River oil shale and Gilsonite.

The total petroporphyrin extracts indicated the presence of two main series of Aetio and DPEP structural-types in all samples. Additional series, which occurred at two, four and six mass units lower than those corresponding to DEPE—type molecular ions, have been detected in the mass spectra of Boscan and La Paz crude oils only. The molecular weight range seems to parallel the thermal history of the geological materials ; i.e. La Paz crude oil which seems to be the most thermally altered, exhibited the widest molecular weight range.

bed with 3.0, 5.0, and 7.0 ft diameter and with lengths of 1.0, 2.0 3.0, and 5.0 ft

147 — Al-Showiman, Salim Showiman
An NMR investigation of E/Z interconversion in N-alkyl imines a related compounds. Birmingham University, 1976.
ix, 184 p.

This thesis is divided into five chapters dealing with investigation of imines and related compounds.

CHAPTER I is a general literature survey on the chemistry and stereochemistry of imines and related compounds.

CHAPTER II deals with carboxylic acid catalyzed equiliberation of N-(a-phenyl 1-4-nitrobenzylidene) methylamine. A drastic accelaration of the interconversion rate was observed at 35° when traces of the carboxylic acid were present. On the other hand, at high temperature the effect was less pronounced and the rate was obtained by the DNMR method and computer assisted lineshape analysis. The acid catalyzed process was associated with a large negative entropy of activation compared with the near zero value for the uncatalyzed process. It is suggested that catalysis involves reversible nucleophilic addition to the C = N bond. Rotation around the C = N + bond in N-benzylidenepyrrolidinium perchlorate was also investigated by dynamic NMR.

CHAPTER III describes a comparative study of isomerization and oxidation of (E) -N- (a-phenyl-4-nitrobenzylidene) methylamine in the presence of 3-chloroperoxybenzoic acid. The imine equilibration was ca 8 times faster than the oxaziridine formation. Catalyzed isomerization was also compared with that of 3-chlorobenzoic acid. The results were found to be better rationalized in terms of the stepwise mechanism for oxaziridine formation.

CHAPTER IV concerns activation parameters for E—Z isomerization in some N—alkyl imines derived from 4-substituted diphenylmethanones (para-substituted benzophenones) and methylamine, benzylamine, 2,2- dimethyl-propylamine (neopentylamine) or t-butylamine. Crystallization involving a second-order diastereotopic transfor-

acter. Furthermore, the aromatic properties are also maintained after the introduction of the methyl group on the nitrogens of «TPP», even though the deformation would be expected to be relatively large in the N-methyl derivatives of TPP. The methylation of TPP, allowed the isolation of the N_a N_b -dimethyl derivative as its free base and not in the monocationic form as in the corresponding N-dialkylated octaethylporphyrin.

Part two of this thesis concerns the synthesis of tetrcarboxymethyl-tetramethylporphyrin isomers and protoporphyrin XIII by the MacDonald route(6). These and some other porphyrins were subjected to the lanthanide induced shifts in nuclear magnetic resonance examinations. Based on the nmr spectra in presence of europium shift reagent, the synthetic protoporphyrin XIII was found to be identical with the product obtained (7) from coproporphyrinogen IV by the action of co-proporphyrinogen oxidase (from an avian haenolysate).

146 — Jarbou, Abdulaziz S.
Energy reclamation for aggregate drying systems. University of Colorado, 1976.
ix, 150 p. Tab. Diagrams.

Heat transfer coefficients for partial condensation in a bed packed with ceramic spheres was investigated. The gas stream consisted of air and steam and the humidity ranged from 0.092 to 0.496 lb H_2O per lb of dry air. The gas flows were : 75.0, 160.0, and 240.0 ft^3/hr.

A computer program was developed to simulate both the heating and cooling cycles of the bed. Then, this program was used to predict the heating and cooling cycles of each experimental run. When the program was used to predict the heating cycle of the bed, a trial and error procedure was used whereby several values of the heat transfer coefficient of condensation were used, and the value that gave best agreement between the experimental and theoretical temperature profiles was considered. By using this trial and error procedure for all the runs, a relation betwen humanity of the gas stream and the heat transfer coefficient of condensation was established for the humanity range that was specified above.

An industrial case study was simulated using the computer program by which the temperature profiles were predicted for a packed

methane) ethylne diimine $(APM)_2$ en and palladium chelate with monethio trifluoroacetyl acetone. Highly selective and sensitive methods for the determination of low concentrations of copper and palladium are established, based on measuring the emission intensity of CuO and S_2 for copper and palladium chelates respectively.

Preliminary investigations are described on the use of MECA for the determination of various volatile metal fluerides. Possibilities are offered which can be used for the selective saparation of various metals by their fluorides or for the determination of the fluoride.

Finally, some studies on physical parameters affecting the MECA emission intensity are given. These include the effect of different cavity materials and shapes. It also includes studies using a water cooled cavity with which we are able to enhance the emissions.

145 — Al-Hazimi, H.M.G.
Nuclear magnetic resonance studies on nitrogen heterocycles.
Cardiff University, 1976.
vii 142 p., illus.

The work described in this dissertation falls into two parts.

Part One deals with nitrogen-alkylated octaethylporphyrin and meso-tetraphenylporphyrin (TPP). N-Methylated porphyrins were first isolated by McEwen[1] and by Corwin[2] nearly four decades ago. Jackson and Dearden[3] prepared a number of N-methylated porphyrins and like the Nottingham group[4], they identified the second methylated component as **trans**-N_a N_b — dimethylporphyrin monocation. Ethyl, benzyl and isopropyl groups have now been introduced on the nitrogen atoms of octaethylporphyrin using the appropriate alkyl iodide. Mixed N-alkylated porphyrins were also prepared and investigated by nmr spectroscopy which gave valuable information about the structures of these compounds in relation to the N-unsubstituted porphyrins. These investigations showed that each alkyl group contributes differently to the degree of deformation of the macrocycles, but without an appreciable loss of aromaticity. This deviation from planarity is also indicated in their visible absorption spectra. Although, the meso-phenyl substituents in the meso-TPP series cause marked distortion[5], these porphyrins still retain their general aromatic char-

que are described which allow the range of elements which can be determined to be enlarged, and interferences to be removed.

The major modifications which are described include an «oxy-cavity», a «reaction vessel» which can be used in conjunction with a MECA analysis, and an externally cooled cavity.

The «oxy-cavity» has been developed by introducing a stream of oxygen directly into the cavity space. This modification allows emissions derived from oxide species of boron, silicon, arsenic, antimony, and other elements to be contained within the cavity space. The use of a reaction vessel for a selective prevolatilization of the analyte followed by an introduction of the vapours into the cavity has been found to be particularly useful. It allows emissions to be sustained for spectral analysis as well as offering a means for removing various interferences. Some preliminary investigations are described using a water cooled cavity.

Two methods for the determination of boron are established. In the first method, boron is extracted as its chelate with 2-ethyl hexane-1-3-diol into methyl isobutyl ketene. The emission arising from a $B0_2$ species, using the «oxy-cavity», is measured at 518 nm. The second method using the reaction vessel involves the selective formation of a volatile methyl-borate compound which is swept into the oxy-cavity via a nitrogen stream. Both of these methods are highly selective and sensitive for the determination of low concentrations of boron.

Molecular emissions from arsenic and antimony were also investigated and highly selective and sensitive methods were established for their determination. They involve conversion of the arsenic or antimony to their volatile hydrides in the reaction vessel. The emissions derived from their oxide species are measured within the cavity. A limit of detection of 0.5 ppm for arsenic or antimony has been found.

The emission of tin-halides were investigated by MECA. A continuous feeding system was designed for the purpose of scanning the emission spectra of tin bromide and tin chloride. A method for the determination of bromide by its tin molecular emission was established.

Some studies on volatile metal chelates are presented. The metal chelates used were copper and nickel chelate with bis (acetyl pivolyl

CHEMISTRY ORGANIC

143 — Bokhary, Hassan Abdalhakim.
Translocation of 14 glucose by species of phytophthora and pythium. Sheffield University - Department of Botany, 1973.
88 P. illus., Plts. 30 cm.

Using the double - dish technique studies were made on growth and translocation of ^{14}C-labelled compounds derived from (^{14}C) glucose by **Phytophthora cactorum, Ph. erythroseptica, Pythium middletonii** and **P. ultimum.**

All four species were found to be able to colonize non-nutrient agar and to either transport or translocate nutrients in the mycelia growing over this substrate. It was found to be difficult, using the techniques employed here, to distinguish satisfactorily between transport and translocation.

Translocation took place at temperatures which did not allow measurable hyphal growth and could also occur in a direction opposite to that of growth, that is from the hyphal tips to the older parts of the colony.

The major labelled soluble carbohydrate in all four species was found to be glucose and it was inferred that this had a major translocatory role in these fungi. Polyols were never detected and the fungal disaccharide trehalose was not found in large quantities.

144 — Ghonaim, Samir A.
Some studies of molecular emission cavity analysis (EMECA).
Birmingham University, 1974.

In this thesis, various aspects of Molecular Emission Cavity Analysis are studied. A brief review of the distinction between atomic and molecular emissions precedes a description of the established MECA technique. Some on the application of the MECA technique for analytical purposes are extended. Modifications of the basic techni-

(30)

(49)

R = H (58)

R = OMe (60)

R = Me (59)

$CH_2 \cdot CH_2$

(53)

Magnetization measurements of the samples have been studied which show the effect of the surface condition on the first critical magnetic field H_{c_1} .The effect of the surface on flux pinning are discussed. Power losses have been studied experimentally for single crystal niobium and for polycrystalline niobium each with three different surface conditions in order to study the effect of the surface properties on these ac losses. A wattmeter technique was developed measurements of power losses in the samples. Experiments were conducted over a range of applied fields at 50 Hz and at 4.2 K. This technique will be described together with the experimental rsults. The results will be compared with predictions from a modified critical state theory and their significance discussed. The critical current density has been measured for each sample using a method based on the measurements of the power dissipation in a small modulating field, in the presence of a steady bias field. The technique will be described together with experimental results.

The shielding field $\triangle$ H in the mixed state has been studied for the samples. The techniques and the results will be discussed for each sample.

142 — **Kabli, R.A.**

Studies on the synthesis of some polycyclic biphenlenes. The University of Bristol, 1973.

103 p. illus., 30 cm.

This thesis is divided into four chapters preceeded by an introduction describing the general chemistry of biphenylene.

Chapter one describes the synthesis and ultraviolet irradiation of **trans-1**, 2-di (2-biphenylenyl) ethylene (30), **trans-1**- (2-biphenylenyl) 2-phenyl ethylene (49), and the Schiff bases (58), (59), and (60). It also describes the synthesis of 1, 2-di (2-biphenylenyl) ethane (53). An attempt to cyclise (53) chemically was unsuccessful.

The increase in the applications of polarography is due to the fact that several elements can often be determined quantitatively in a single solution without a lengthy preparation of this solution, and is also due to the speed with which polarograms can now be recorded by modern instruments. In the field of metallurgical analysis the polarographic method is very suitable since many elements reduce at the dropping mercury electrode giving well-defined polarograms. Also it finds a wide application in the determination of trace metallic impurities in commercial chemicals and in many biological and organic materials.

1.2 Polarography using the dropping mercury electrode.

Polarographic studies of elements and many applications of polarography in inorganic analysis have been carried out in different media, since the technique was discovered.

Ammonia-ammonium chloride[3], hydrochloric acid[4], sodium perchlorate[5], potassium cyanide[6] and many other [7-11] supporting elecctrolytes have been used for investigations on metallic ions polarographically, as yet no reliable work has been done in fluoride media. Studies in these media have been retarded because of the lack of a dropping mercury electrode that performs satisfactorily in such media. Ordinary lead glass capillaries are attached by fluoride solutions and produce a lead wave which can interfere with the system under study. Several attempts have been made, without success, by previous workers to produce a capillary suitable for this purpose.

Clifford and co-workers[12] fabricated a capillary for the dropping-mercury electrode by squeezing a piece of Kel-F (Polytrifluoro-chloroethylene) around a tungsten wire of diameter.

141 — **Al-Huseini, Fahad A.**
Ac losses in superconducting niobium. University of St:, Andrews, 1972.
122 p., illus., plates., 30 cm.

This thesis is concerned with measurements of alternating field losses in cylindrical rods of niobium in its superconducting state. Six samples have been investigated each with a different surface condition.

infrared spectra. On the other hand, the reaction of $WSCl_4$ with excess triphenyphosphine oxide in acetonitrile solution resulted in a reduction reaction and the formation of $WSCl_3$. 2 Ph_3PO, this formulation being supported by magnetic measurements and the electron spin resonance spectro.

The physical methods employed to study the compounds isolated in this study included :

Infrared (4000-200 cm^{-1}) and Raman (4000-20 cm^{-1}) spectrosce.

Visible / Ultraviolet spectroscopy.

X-ray powder diffraction measurements.

Electron spin resonance spectroscopy.

Magnetic susceptibility measurements.

Electrical conductivity measurements.

140 — **Hamza, Abdul Ghani.**
Inorgenic polarography and voltammetry in fluoride solutions.
University of Sheffield, 1966.
99 p., illus., plates., 30 cm.

Polarographic measurements were first made by Heyrovsky at Charles University in Prague, and were first described in 1922.[1] The next twenty years were mainly spent on the development of the theory methods and instrumentation of the technique. The steady growing proof of the versatility of polarography, which received its first exposition in 1941[2] by the publication of Kolthoff and Lingan's monograph, then led to a rapid growth of interest on the part of analytical chemists in many other countries. Polarography has since become one of the most widely used techniques of analytical chemistry, and it is now well established in many analytical laboratories along with other modern physico-chemical methods such as absorption spectrophotometry and emission spectroscopy.

CHEMISTRY - INOEGANIC

139 — **Baghlaf, Ahmad Omar**
Some transition metal halides oxohalides thiohalides and their complexes. University of Manchester, 1975.
xiii, 217 p., illus.

For some time an important area of study in the chemistry of transition metals has been the preparation, characterisation and structure of halides and oxohalides, but until recently no studies have been reported on the corresponding thiohalides. Chapter One of this thesis contains a review of the reactivity of halides and oxohalides of group (V) and (VI), mainly in the + 5 and +6 oxidation states, and Chapter Two contains a review of the preparation, structure and reactivity of the know transition metal thiochalides and their complexes with oxygen and sulphur donor ligands.

The work in this thesis has involved the preparation and characterisation of some new thiohalides of group (V) and (VI) transition metals i.e. $NbSCl_3$, $NbSBr_3$, $TaSCl_3$, $NoSCl_3$ and $WSCl_4$ by the reaction of the appropriate halide with boron trisulphide. The reactivity of these thiohalides with some oxygen donors such as triphenylphosphine oxide, sulphur donors such as triphenylphosphine sulphide and nitrogen donors such as acetonitrile, pyridine and some other related nitrogen-containing ligands have been studies.

A number of 1 : 1 complexes of niobium and tantalum pentahalides with the oxygen donor ligands tetramethylurea and triphenylphosphine oxide and also some 1 : 2 and 1 : 1 complexes of niobium oxotrichloride and tungsten oxotetrachloride with hexamethylphossphoramide and triphyenylphosphine oxide have been prepared and characterised.

Tetramethylurea undergoes oxygen-abstraction reactions with $NbCl_5$ and $NbBr_5$ to form the oxotrihalide complexes $NbOCl_3$ .2TMU and $NbOBr_3$ 2 TMU. The infrared spectra of these complexes suggest the presence of the (Nb=0) bond. Also triphenylphosphine oxide undergoes oxygen-abstraction reactions with $NbSCl_3$ & WSCl as indicated by their

138 — **Al-Sulimany, Fouad Abdallah.**
Analytical applications of molecular complexes and polarography. University of Birmingham, 1973.
186 p., illus., 30 cm.

The thesis is in two parts.

In Part I, previously recommended methods for the separation and analysis of polyphosphates are reviewed. A polarographic study of zinc, cadmium and cobalt ions in the presence of phosphates is made. The decreased height of the cadmium wave in a neutral solution of tripolyphosphate is used to selectively determine tripolyphosphate in the presence of other condensed phosphates.

The analysis of a mixture of tripolyphosphate and nitrilotriacetic acid in the neutral medium was also possible by the use of cadmium ions in a similar way.

Tris (ethylenediamine) cobalt (III) chloride is shown to be unsuitable for the analysis of a mixtur of pyro-and tripolyphosphate at the mg level. Attempts to determine pyrophosphate and tripolyphosphate in admixture by precipitation of the total polyphosphate content at pH 7 and pyrophosphate alone at pH 3, using cadmium or zinc ions, and determination of the metal content of the precipitate polarographically was unsuccessful. In both instances tripolyphosphate interfered with the pyrophosphate precipitation.

In Part II, the use of molecular complexes in analytical chemistry, as well as previously recommended methods for the analysis of amino acids and vitamin A, are reviewed. Spectrophotometric methods for the analysis of μ g amounts of amino acids and vitamins A and D, are developed based on the formation of molecular complexes between the different amino acids with chloranil in pH 9.0 aqueous borate buffer and vitamins A and D_2 with iodine in chloroform and 1,2-dichloroethane.

Unsuccessful atempts to use spectrofluorimetry for the determination of aromatic compounds by the formation of the fluorescent molecular complexes with trinitrofluorenone as well as the rapid determination of amino acids by the formation of their molecular complexes with riboflavin, are also described.

The application of the method for the determination of chloride in unknown aqueous solutions of chloride is also described.

Finally, in Part IV, a method for the gas chromatographic separation and determination of halides in mixtures of two (iodide + chloride, bromide + chloride and iodide + bromide) and three halides (iodide + bromide + chloride) is established from studies of the experimental conditions and parameters which can cause irreproducibility or lack of effectiveness of the separation of each of these mixtures.

Analysis of unknown samples for each of the mixtures mentioned above is also carried out using this method.

137 — **Mosly, Soliman A.**
Analysis of amphetamines and other psychoactive drugs : a colorimetric assay of (S)..(+)-amphetamine in the submicrogram range. American University, 1974.
xii, 137 p. diagrams

A quantitative, colorimetric assay for (S)—(+) -amphetamine at the 10-100 nanogram level has been developed. Reaction of (S)-(+)-amphetamine with a ten-fold or larger molar excess of 2,5-dimethoxyoxolane in glacial acetic acid-chloroform mixtures at 100° for ten minutes gives (S)-(+)-1-phenyl -2-(1-pyrrolyl) - propane quantitatively. Addition of a fifty-fold or larger molar excess (based on (S)-(+)-amphetamine) of (E)-P-dimethylaminocinnamaldehyde in acidic ethanol at room temperature gives a blue solution with long wavelength λmax 630 nm (ϵ = 60,000 $\pm$ 3,000 at C = 10 $^{-5}$ M). Under appropriate conditions, the formation of the colored complex takes a few minutes, while its decomposition has a half-life of 2.0 $\pm$0.10 hours. Blood serum or urine samples containing at least 2 ug/ml of (S)-(+) -amphetamine may be analyzed by adjustment of the pH to 8-9, extraction with an equal volume of chloroform, and treatment of the extract as described above. Pure samples or extracts both display a linear dependence of the absorbance on initial concentration of (S)-(+) amphetamine. The maximum error in reproducibility was 4 percent within a set of runs extracted from the same source of blood-serum or urine, and 5 percent within sets from different blood-serum or urine sources.

CHEMISTRY - ANALYTICAL

136 — **Banah, Mahmoud Mohamed**
The Separation and determination of holides by gas-liquid chromatography. Birmingham University, 1975.
ix, 227 p., illus.

This thesis is in four parts.

In Part 1 the general methods of separation are outlined. Little details are given to those methods which include interphase separations, especially chromatographic methods.

The basic theory and instrumentation involved in gas-liquid chromatography together with the use of this technique in inorganic analysis are also described.

Part II deals with the preparation, characterization and the gas chromatography of some trifluoromethylmercury (II) salts.

Trifluoromethylmercury (II) trifluoroacetate, trifluoromercury (II) nitrate, trifluoromethylmercury (II) chloride, trifluoromethylmercury (II) bromide and trifluoromethylmercury (II) iodide have been prepared and the characterization of some of these compounds has been carried out through carbon and fluorine analysis, infra-red analysis, gas-chromatographic analysis, thermal analysis and qualitative inorganic analysis.

Also the gas chromatographic elution of trifluoromethylmercury (II) halides has been carried out successfully and the resulting chromatogram shows clearly that these compounds have advantages in terms of thermal stability and volatility over the corresponding non-fluoronated alkyl or arylmercury halides.

In Part III, a method which includes the quantitative formation, extraction and gas chromatographic determination of trifluoromethylmercury (II) chlorid from aqueous solution is described.

hyoscyamine (principal alkaloid), hyoscine, noratropine, norhyoscine, apoatropine, apohyoscine ; 3a-tigloyloxy-tropane and tigloidine were indicated by chromatographic evidence. 3a, 6 β -Ditigloyloxtropane, 3a 6 β-ditigloyloxytropan - 7 β-ol, meteloidine were characterised from the roots ; littorine, tropine and cuscohygrine were indicated from chromatographic evidence only. These results afford further evidence of the uniform alkaloid chemistry of the genus **Datura.**

All bases above were identified by the usual physical and chemical methods. The implication of the findings in relation to the chemotaxonomy of the genera concerned are considered.

Four new tropane alkaloids have been synthesized from tropine and ψ -tropine.

Theoretical treatment of the data was carried out using a single equation of state for both phases. Two parameter equations of state were investigated. Three equations were modified forms of the Redlich-Kwong equation and one was a modified van der Waals. Independent data on binary and ternary systems were used to provide better measures of the versatility of the chosen equation (Peng-Robinson modified van der Waals equation). The choice was based on an overall superior performance in evaluating mixture properties.

135 — Al-Yahya, Mohammed Abdulaziz Ibraheem
Phytochemical studies in the ery-throxylaceae & solanaceae.
Nottingham University, 1976.
179 p., illus.

From the root-bark of **Erythroxylum dekindtii three** naturally occurring new alkaloids have been discovered and characterised as 3a- (2-furoyloxy) tropane, 3a-isovaleryl-oxytropane and tentatively 3a-phenylacetoxytropane ; methylecgonidine (this is the first report outside **E. coca)** a mixture of poroidine and isoporoidine, tropine and possibly valeroidine were also isolated. Examination of the leaves, stem-bark, stem-wood and root - wood by T.L.C. indicated that they contained the same pattern of alkaloids as the root-bark.

A detailed examination of F_1 of the cross **Datura stramonium** var. **godronii X D. discolor** yielded 3a, 6 β-ditigloyloxytropane, 6 β - isovaleryloxy - 3a, tigloyloxytropan - 7 β ol, 3a, 6 β -ditigloyloxytropan - 7 β -ol, possibly 3a-(2-hydroxy-3-phenylpropanoloxy)-6 β -tigloyloxytropane (a new alkaloid), base Y possibly a new base, apoatropine, apohyoscine, tigloidine, hyoscine, norhyoscine, tigloyloxtropane, an unidentified base, meteloidine, atropine, possibly 6 β -tigloyloxytropan - 3a-ol, 3a-acetoxytropane, littorine, noratropine, possibly 3a-tigloyloxy notropan - 6 β ol (a new alkaloid), cuscohygrine, tropine and ψ -tropine as constituents of the roots ; hyoscyamine (principal alkaloid), hyoscine, noratropine, apoatropine, meteloidine, norhyoscine, apohyoscine, tropine and ψ -tropine were obtained from the aerial parts.

In a typical systematic examination of **Datura quercifolia,** the following alkaloids were isolated from the aerial parts : -

the triplet state. The symmetry reduction appears to be more extensive than that occuring in benzene, as evidenced by the larger magnitude of E in crystalline HCB. In a hexamethylbenzene host the two zero-field transitions are almost degenerate, indicating that the symmetry reduction is induced by a strong crystal field in the pure HCB sample. A PMDR analysis of the phosphorescence of pure HCB is interpreted in terms of a D_{2h} molecule in a crystal site of low symmetry.

A PMDR analysis of the phosphorescence of pyrazine in a p-dioxane host reveals that the sublevel origins of the bands correspond to a triplet state molecular symmetry of C_{2h} or lower. The demagnitudes of the zero-field splitting parameters are found to deviate from those expected for an sp^2 hybrid for the lone pair orbitals on the nitrogens, suggesting that the symmetry reduction is, at least partly, caused by a rehybridization of the lone pair orbitals.

The mechanism of phosphorescence in perdeuterated naphthalene host is investigated. The spin sublevel origins of the bands, except for the 0,0, are in agreement with the predictions based on a D_{2h} point group. The 0,0 band originates from at least two spin sublevels, suggesting that crystal field perturbations are involved. The concentration dependence of the emission and spin alignment in isotopically mixed crystals is investigated. At low concentrations, a steady state population inversion between the spin levels is detected. The concentration dependence of the spectrum is interpreted in terms of a spin selectivity of the triplet-triplet annihilation process.

134 — **Somait, Fahad A.**

An Experimental and A Semi Empirical treatment for the Nitrogen - Methane-Carbon dioxide systems at vapor - liquid equilibria. Colorado University, 1976.

ix, 124 p. tab.

Vapor-liquid equalibria data for the binary systems nitrogen + carbon dioxide, and methane + carbon dioxide as well as the ternary system nitrogen + methane + carbon dioxide, were determined at 270.00°K and for the entire useful pressure region (32-120 atm).

CHEMISTRY - PHYSICAL

133 — Gwaiz, Abdel Aziz A.
Determination of the molecular symmetry in the triplet state using phosphorescence - microwave double resonance techniques. University of California, 1972.
xix, 184 p. tab.

The electronic and vibronic transitions in the phosphorescence emission each consist of one or more components originating from the zero-field spin sublevels of the lowest triplet state. The zero-field origin of each band is normally determined through polarization measurements of the band emission, but the recently developed technique of phosphorescence - microwave double resonance (PMDR) has proven to be a much more sensitive and versatile method. At liquid helium temperatures the spin-lattice relaxation processes can be frozen, or slowed down to the extent that a detectable population difference exists between the triplet spin sublevels. Applying microwaves of a frequency resonant with the zero-field splitting energy between two spin levels, may alter their populations to the extent that a change in the emission band intensity is optically detectable. The sign of the PMDR signal can then reveal the sublevel origin of the bands, and, hence, their polarization. Since the polarization of the phosphorescence emission is dependent on the molecular geometry in the triplet state and the triplet spatial wavefunction symmetry, PMDR can be an effective probe of the molecular symmetry in the triplet state. This possibility is demonstrated in this work through studies on benzene, hexachlorobenzene, pyrazine and naphtalene.

In benzene, two zero-field transitions are detected indicating that the molecular symmetry is lower than C_3h . A PMDR analysis of the emission bands reveals that the molecular point group is D_2h , and the emiting triplet state is assigned as $^3B_{1u}$. The mechanism of spin-orbit and vibronic coupling is also investigated.

The detection of two zero-field transitions in crystalline hexachlorobenzene reveals that the molecular symmetry is reduced in

relation has been found between the changes in X opt. and those in the naphelauxetic ratios in going from left to right in the first transition series, as well as with the change in the oxidation state, from 3 to 4. In chapter 6, the spectrum of $KMnF_5$ has been studied for the first time. In chapter 7, the divalent fluoro complexes of the first transition series, V^{2+} to Cu^{2+}, have been studied in the two structural forms K_2MF_4 and the perovskite KMF_3 in the hope of establishing the effects of the two structural forms on the spectra. In both cases the octahedral symmetry is attained via the linkage between the neighbouring units, but the spectra are complicated by the effects of Jahn-Teller and spin-orbit coupling which mask the effect of the two structural classes to a great extent. In chapter 8, the hexafluorometallate (IV and V) complexes of osmium and irridium have been investigated and in all cases for which a ground state orbital degeneracy exists spin-allowed d-d bands due to splitting within the ground state manifold by spin-orbit coupling have been observed for the first time. The relativistic and nephelauxetic ratios have been also derived and the charge - transfer bands have been successfully interpreted in terms of X opt. and the values derived were consistent with the change in the oxidation state and the position in the transition series. The effect of spin-orbit coupling has also been compared with that of the other halo derivatives of Os^{4+} and Ir^{4+} which showed a steady decrease in the effective spin-orbit coupling constant on going from F^- to 1^-. Chapter 9 includes a study of one of the less common coordination nombers, penta-coordination in a number pentahalocuprate (11) complexes. The complexes studied are thought to have trigonal bipvramidal structure and the observed spectra have been interpreted on this basis.

Spectral studies of the fluorenyl-sodium in T.H.F. solution were carried out at different temperatures.

Addition of Ph, BNa to the reaction or organosilyl-sodium and fluorene in T.H.F. solution at -30° was studied and was shown to have negligible effect, indications that free ions have no effect on the reaction.

132 — **El-Sharkawy, Jamal A.M.**
Electronic spectra of transition metal halo complexes, Cardiff University, College - Department of Chemistry, 1971. viii, 331 p.

In the present study the spectra of halo complexes of several transition metal ions in various oxidation states have been investigated using the diffuse reflectance technique at room and, in most of the cases, at liquid nitrogen temperatures. The first two preliminary chapters outline the effect of the ligand field on the energies of the electrons within the d shell, while chapter 3 summaries the selection rules which govern the electronic transitions. In chapter 3, the theory of diffuse reflectance spectroscopy has also been outlined. Chapter 4 is concerned with general preparative techniques for fluoro complexes. In chapter 5, the electronic spectra of the hexaflourometallate (III) complexes of the first transition series — Ti^{3+} to Co^{3+} —have been reinvestigated. The present work has revealed many new features as far as the d-d transitions are concerned, and for the charge transfer region the Laporte-allowed bands have been observed for the first time. These observations have been successfully interpreted in terms of Jorgensen's optical electronegativity, $X_{opt.}$ .In chapter 6, the hexafluorometallate (IV) complex of chromium has been studied and the corrsponding compounds of V^{4+} and Mn^{4+} also reinvestigated. In addition, the present study has revealed new features for the crystal field bands, and in particular, a marked vibrational fine structure, for MnF_6^{2-} similar to the early observations by Allen and Warren for the CoF_6^{2-} and Nif_6^{2-}complexes. The charge-transfer bands have also been successfully interpreted in terms of $X_{opt.}$ and a cor-

symmetrical disilances by alkali—metal in T.H.F., D.M.E., and dioxane. Approximately 100% conversion of Ph_3 SiSi Ph_3, Ph_2 MeSiSi Me Ph_2 and Ph Me_2 SiSi Me_2 Ph into their respective silyl-alkali metal compounds was observed. All these reactions were carried out under high vacuum conditions.

The spectral studies of the organosilyl-alkali metal compounds in T.H.F., D.M.E., and dioxane solutions were carried out at different temperatures and at different concentrations.

The slow cleavage of tetrahydrofuran by Ph_3 SiNa and Ph_2 MeSiNa was studied by following the decay of their absorption maxima at 346 nm. The pseudo-first order rate constants at 30° for this reaction, (R_3SiNa + T.H.F. $\longrightarrow$ R_3Si $(CH_2)_4$ ONa) indicates that Ph_2 Me SiNa is more reactive than Ph_3 SiNa. The anomalously high rate constant for Ph_2 MeSiNa is due to its lower $\Delta H^{\neq}$

The kinetic study of the interaction of organosilyl-sodium (Ph_3 SiNa and Ph_2 MeSiNa) with fluorene was carried out spectroscopically in T.H.F. solution under high vacuum conditions and in all glass apparatus, using a stop-flow technique. In all of these experiments the formation of the product was monitered at a fixed wavelength.

The order of reaction in each case was found to be unity in fluorene, and the respective organosilyl--soduim. The results indicate that Ph_2 MeSiNa is more reactive than Ph_3 SiNa.

The thermodynamic constants of activation for the reaction between organosilyl-sodium and fluorene, determined at -30° are :—

	Ph_3 SiNa	ph_2 MeSiNa
k (I. $mole^{-1}$ sec^{-1})	8.4	19.8
$\Delta G^{\neq}$ (K cal/Mole)	13.1	12.7
$\Delta H^{\neq}$ (K cal/Mole)	1.6	1.5
$\Delta S^{\neq}$ (cal $mole^{-1}$ $deg.^{-1}$)	—47.4	—45.8

by V^V at measurable rates, but a redox reaction could not be detected with hydrogen peroxide, hydrazoic acid and phenol. The kinetics of the oxidation of Br^- and I^- by Co^{-III} and Ce^{IV} have also been investigated.

The detailed kinetic study of the oxidation of i. propanol, a—hydroxyisobutyric acid and hydroxylamine by V^V using a sampling technique and direct conventional spectrophotometry are reported. All these reactions are first-order in $[V^V]$. No complex formation was detected with i. propanol, but the reactions with a—hydroxisobutryric acid and hydroxylamine involve intermediate complexes. The kinetics confirm the previous observation that the protonation of the VO^+2 species is negligible. It is suggested that the rate determining steps involve the formation of free radicals by a single electron transfer although these radicals do not initiate the polymerization of acrylonitrile in this system.

Stopped-flow spectrophotometry was used in investigating the very fast oxidations of Br^- and I^- by Co^{III} and Ce^{IV}. Kinetics and spectrophotometric evidence suggests that all these reactions involve intermediate complexes, and a general mechanism is postulated to explain all the known observations. Several alternative simplifications of this mechanism explain the variations of rate with reactant concentrations and $[H^+]$ in each case and these are kinetically undistinguishable.

Values of rate constants, energies of activation and entropies of activation for all these reactions are calculated from the detailed kinetic study over ranges of temperature. These values are compared with those for other cation--substrate systems.

131 — **Salamah, G.M.**
A study of anions containing silicon. The University of Wales, 1972.
176 p., illus., 28 cm.

The organosilylalkali—metals (Ph_3 SiM, Ph_2 MeSiM and $PhMe_2$ SiM, where M = Li, Na, K and Cs) were prepared by the cleavage of

ment of the C—5 tosyloxy group, although minor products were formed from a reaction involving benzoyloxy—group participation.

129 — **El-Muhtadi, Farid Jalal.**
Chemotaxonomic and Biosynthetic studies in Certain Rumex Species. University of London, School of Pharmacy, 1969.
270 p. Tbls. Plts.

The anthraquinone derivatives of 20 species of **Rumex** have been investigated from viewpoints of their biogenesis, chemical taxonomic usefulness and their possible function in the plant. Although it was not possible to establish broad taxonomic generalisation on such a small number of species, the type of anthraquinone present was shown to be help in some instances particularly when the morphological characters failed to show differences between closely allied species. Their biogenesis was investigated by the use of radioactive tracer technique and evidence is produced to show that they are formed by the acetate-malonate mechanism.

Their possible function was investigated by examining the pattern of anthraquinone content during the active stage of development from flower to fruit, and by feeding radioactive glucosides to the living plants. Evidence is produced to indicate that the anthraquinones are metabolised in the plant.

Two new anthraquinone compounds were isolated and shown to have some taxonomic importance and possibly of significance in confirming the route of biosynthesis.

130 — **Nazer, Abdul Fattah M.**
Some reactions of V^{V}, Ce^{IV} and Co^{III} in aqueous perchlorate Media. University of Birmingham, Department of Chemistry, 1973.
512 p. illus., 35 cm.

In the present work, some reactions of V^{V}, Ce^{IV} and Co^{III} with organic and inorganic substrates are investigated in aqueous perchloric acid. Preliminary experiments showed that hydroxylamine, a—hydroxyisobutyric acid, i. propanol and catechol are oxidized

3—O—toluene—p—sulphonyl— α —D—allofuranose by an unequivocal route. Thus, selective tosylation of the diol afforded 1,2—O—isopropylidene—3,6—di—O—toluene—p—sulphonyl— α —D—allofuranose, which on heating with sodium azide in N,N,—dimethylformamide was converted into 6—azido—6—deoxy—1,2—O—isopropylidene—3—O—toluene—p—sulphonyl— α —D—allofuranose. Hydrogenolysis of this azide over palladised calcium carbonate gave 6—amino—6—deoxy—1,2 —O— isopropylidene— 3—O—toluene—p — sulphonyl α —D—allofuranose, which was smoothly cyclized on heating in etanol—sodium acetate to give, after N—acetylation, 3,6—acetylepimino-3,6—dideoxy—1, 2—O—isopropylidene— α —D—glucofuanose. The 5—methanesulphonate derived from the latter compound underwent a displacement reaction with sodium benzoate to afford 3,6—acetylepimino—5—O—benzoyl—3,6—dideoxy—1,2—O—isopropylidene— β —L—idofuranose, which was used to identify a compound obtained after benzoylation of a product obtained from the solvolysis of 3—acetamido—3—deoxy—1,2—O— isopropylidene— 5,6—di—O—methanesulphonyl— α —D—glucofuranose in methyl cellosolve.

Part II

2—O—Methyl—D—lyxose has been prepared by oxidation of 3—O—methyl—D—galactose with a limited amount of sodium periodate. 3—O—Methyl—D—galactose was obtained by methylation of 1,2 : 5,6—di—O—isopropylidene— α —D—galactofuranose followed by hydrolysis of the methylated product with acid. The methylpentose proved to be enatiomeric with a sugar component of the antibiotics everninomicin B and D.

The naturally occurring sugar, 2—O—methyl—L—lyxose, was synthesized by oxidative degradation of 3—O—methyl—L—talose with manganese dioxide. Entry into the L—talose series was gained by inverting the configuration at C—5 of 1,2—O—isopropylidene—5,6— di—O—methanesulphonyl—3—O—methyl— α —D—allofuranose by means of a benzoate displacement reaction. The reaction of 6—O—benzoyl—1,2—O— isopropylidene—3—O—methyl—5—O— toluene—p—solphonyl α —D—allofuranose with potassium acetate in hot N,N—dimethylformamide afforded mainly 5—O—acetyl—6—O—benzoyl—1,2—O— isopropylidene—3—O—methyl— β —L—talofuranose by direct displace-

The enhancement caused by gamma irradiation of oxygen adsorption on MgO did not operate at 450°C and above, whilst for hydrogen adsorption this effect continued to 500°C. This may indicate that the hydrogen is a more efficient scavenger for the positive hole than the oxygen towards the electron.

128 — **Mofti, Ali Mohamed.**
A contribution to the Chemistry of Amino and Antibiotic Sugars. The University of Dundee, 1971.
107 p., illus., 25 cm.

Part I

3,5—Diacetamido—3,5—dideoxy—L—lyxose has been synthesized by way of the reaction of anhydrous hydrazine on 1,2—O—isopropylidene—3, 5—di—O—toluene—p—sulphonyl— β L—arabinofuranose to give 3, 5—dideoxy—3,5—hydrazino—1,2—O—isopropylidence— β —L—lyxofuranose. The latter compound was ultimately converted into 3,5—diacetamido—3,5—dideoxy—L—lyxose following hydrogenenolysis over Raney nickel, N—acetylation, and hydrolysis with acid. The free sugar was indicated to exist at equilibrium predominantly as the pyranoid ring-form in aqueous solution ; the composition of other 3,5—diacetamido—3,5—dideoxypentoses at equilibrium is discussed.

3—Amino—3—deoxy—L—lyxose has been prepared for the first time by a sequence of reactions on 1,2 : 5,6—di—O—isopropylidene-∝ —D—gulofuranose. Oxidation of this diacetal with acetic anhydride and dimethyl sulphoxide afforded 1,2 : 5, 6—di—O—isopropylidene- ∝ —D—xylo—hexofuranos—3—ulose, which was converted into 3—acetamido—3—deoxy—1, 2 : 5, 6—di—O—isopropylidene— ∝ D—gulofuranose by sequential oximation, reduction, and acetylation. Selective removal of the exo—cyclic acetal group and application of a conventional chain-shortening sequence gave 3—acetamido—3—deoxy—1, 2—O—isopropylidene— β —L—lyxofuranose. The syrupy amino sugar hydrochloride was liberated by hydrolysis of the latter acetal with dilute hydrochloric acid.

3,6—Acetylepimino—3, 6—dideoxy—1, 2—O—isopropylidene— ∝ —D—glucofuranose has been prepared from 1,2—O—isopropylidene—

Part (II), is concerned with nucleophilic substitution reactions of 2-x- 3,4,5,6—tetrafluoronitrobezene (X = H,Br,NO_2), and the effect of the group -x- on the ortho/para- (to the nitro-group) isomer ratios.

In part (III), several —2—trifluoromethylpolyfluoro—benziminazoles have been prepared by the reaction of polyfluoro—o—phenylenediamines with trifluoroacetic anhydride in conc. hydrochloric acid, and by the reduction of trifluoroacetamido-derivatives. The latter were prepared by standard reactions from C_6F_5X compounds (X = CF_3, cl) via the para-amines, $NH_2C_6F_4X$, the para-nitro-compounds $NO_2C_6F_4X$, and finally the ortho-nitro-amino-C_6F_3X — compounds.

127 — **Hassan, Lyla Abdulrahman.**
Chemisorption and catalysis on Gamma irradiated magnesium oxide. University of Wales. 1974.
127 p. plats.

The effect of gamma irradiation on N_2O decomposition, N_2O adsorption, oxygen adsorption, and hydrogen adsorption on specpure and ex-carbonate MgO was studied over the temperature range of 21–600°C.

Starting with initial pressure of 55 torrs of N_2O (1) Very marked enhancement of the rate of N_2O decomposition at 250° and 300°C occurred under gamma irradiation ; (2) The activation energy of N_2O decomposition changed from 35.7 k.cal.mole^{-1}, over temperature range of 400—500°C, in the absence of gamma irradiation, to 10 k.cal.cole^{-1} over the temperature range of 250—400°C under gamma irradiation. This suggests a change in the mechanism of N_2O decomposition caused by gamma irradiation ; (3) No effect on the rate of N_2O decomposition was observed at temperatures of 450°C and above, where the defects produced by gamma irradiation are annealed before the reactants have the opportunity to utilize them.

Using an initial pressure of 0.06 torr the rate and the amount of oxygen adsorption on MgO under the influence of gamma irradiation increased markedly at 21°C. The degree of enhancement decreased with increasing temperature from 21°C to 450°C. This probably is due to the increase in the rate of annihilation of the charge carriers produced by irradiation.

above 400°C. The reaction above this temperature proceeds mainly through CO_3^{2-} formation and exhibits a first order dependence on oxygen.

The effect of gamma radiation at low temperatures consists of (i) increase in the oxidation rates between 100° and 200°C through enhancement of the adsorption of the reactants and desorption of CO_2. (ii) a retardation at 250°C and 300°C due to increased competitiveness of the carbonate complex over carbonate ion mechanism.

At temperature 400°C and 500°C the effect of irradiation is undetectable.

The effect of variation of the partial pressures of oxygen and CO on the reaction suggests the possibility that changes in the partial pressures may favour the predominence of one particular reaction mechanism over another.

126 — **Ezmirly, Saleh Taher.**
Some studies of the Chemistry of fluorinated heterocycles and of polyfluoro-Aromatic compounds. University of Birminham 1969.
180 + 14 p., 39 plts.

This thesis is divided into two sections. The first section is concerned with the fluorination of tetrahydropyran over cobalt trifluoride. The main products were polyfluorotetrahydropyrans and the minor ones were polyfluorobutanes. These were separated by distillation and gas-chromatography. The structures of the pyrans were determined by n.m.r. and by further reactions. A mechanism for this fluorination has been proposed. Some chemical studies have also been carried out on the pyrans involving dehydrofluorination reactions ; it was found that hydrogens α to oxygen were very difficult to abstract. Some reactions of olefins formed have also been done.

The second section is divided into three parts.

Part (I), deals with some electrophilic substitution reactions of 2,3,4,5—tetrafluoronitrobenzene. During this work, somewhat surprising results were found when the nitrogroups of polyfluoronitro-aromatic compounds were replaced by halogens.

bovine acetylcholinesterase to further clarify the nature of the active site of acetylcholinesterase proposed by Beckett (1967).

Mass spectrometric studies and fragmentation pathways for many of the above compounds were examined.

125 — **Al-Dugaither, Mustafa Ali.**
A study of reactions on the surface of Gamma irradiated magnesium Oxide. University of Wales, 1974.
148 p., plts.

Adsorption of carbon monoxide on two types of magnesium oxide was studied over the temperature range 21 — 650°C both under the influence of gamma irradiation from a ^{60}CO cource and in the absence of radiation.

The evidence obtained indicated that adsorption in the temperature region (21 — 300°C) involved predominantly weak electronic processes of interaction, whilst at higher temperatures two types of adsorption were encountered, (i) a rapid chemisorption probubly involving bidentate carbonate ; (ii) a slower chemisorption involving the formation of CO_3^{2-} ions.

The enhancement of adsorption by gamma radiation reachcd a maximum in the region 300 — 400°C and continued to an unexpectedly high temperature of 600°C.

The persistence of radiation enhancement at high temperature was attributed to the effect of radiation on the anion vacancies associated with the CO_3^{2-} ions.

The interaction of radiation with the electrons trapped in the anion vacancies leads to their delocalization and to the initiation of diffusion processes that result in the regeneration of surface activity.

The CO oxidation studies between 100 and 650°C indicated that at low temperature the reaction of stoichiometric mixture of oxygen and carbon monoxide proceeds mainly through the reaction of adsorbed oxygen and carbon monoxide on the surface of MgO. The carbonate complex produced by the reaction becomes unstable at higher temperature and is formed only in the early stages of the reaction

CHEMISTRY — GENERAL

124 — **Al-Badr, Abdullah Abdulaziz.**
Chemical studies on some bicyclic Amimo-Alcohols.
University of London, 1975.
331 P. Plts.

The active site of the enzyme acetylcholinesterase (AChE) is briefly described and the factors affecting the binding of substrates and inhibitors are discussed.

Some ketones, oximes and aminoketones which constitute intermediates for the preparation of acetylcholine analogues based on the bornane structure were synthesized. Also some aminoketones, aminoalcohols and their corresponding acetates representing analogues of acetylcholine based on the bornane and bicyclo (2,2,2) octane structures were prepared by other workers were utilized in the present studies.

Various synthetic routes to yield apocamphor were investigated with the intention of using this nucleus as the basis for other acetylcholine analogues.

Studies of the stereochemistry of reduction of some ketones, aminoketones and oximes based on the bornane structure and of an aminoketone derived from bicyclo (2,2,2) octane were undertaken using various reducing agents ; the effect of steric hindrance, electronic effects and the mechanisms of the reactions are discussed.

The pKa values and rates of quaternization of the above aminoketones, aminoalcohols and aminoacetates based on the rigid bornane and the slightly more flexible bicyclo (2,2,2) octane nucleus were determined and the results interpreted in terms of hydrogen bonding, steric, stereochemical and electronic features. The difference in the two methods for considering the influence of the above physicochemical features is explained.

Various acetylcholine analogues and their tertiary amines based on the above carrier molecules were studied for their reaction with



CHEMISTRY

The fuel and moderator temperature coefficients of reactivity were negative while that of the reflector was determined to be positive. The values for the fuel-to-coolant heat-transfer coefficient and the moderator coefficient of reactivity were within $\pm$ 12% of the values calculated by independent methods.

On the basis of these experimentally measured kinetic parameters, a complete study of the linear and nonlinear stability proved the inherent and asymptotic stability of the UVAR. This analysis was based on the mathematical model that was developed for the reactor, and assumed the feedback was linear.

Finally, consideration is given to the effects produced by the change of cation on the low-energy intra-ground state transitions.

123 — **Obaid, Mohamed Abdel Fatteh.**
Determination of the lumped heattransfer and reactivity coefficients of a nuclear reactor. University of Virginia - Faculty of the School of Engineering and applied science, 1967.
xiv, 116 p.

This work presents a novel method of determining the lumped heat-transfer coefficients plus the temperature coefficients of reactivity of a nuclear reactor. No knowledge of the component temperatures is required, so that the method is particularly attractive in systems where temperatures cannot be monitored, or where uncertainties in temperature variations can produce large errors in experimental results.

A mathematical model was developed for the reactor which was assumed to consist of lumped fuel, moderator, and reflector components. Equations were derived to permit an evaluation of the heat-transfer and temperature feedback coefficients, through a matching of the model to the frequency response, as obtained by pile oscillator techniques.

The method was applied to the University of Virginia swimming pool reactor (UVAR). The lumped heat-transfer and reactivity coefficients for it were determined to be :

Heat-transfer coefficient between fuel plates and coolant

$$= 498 \ \frac{\text{BTU}}{\text{hr-ft}^2\text{-°F}}$$

Fuel temperature coefficient of reactivity $= 2.45 \times 10^{-5} \ \frac{\delta K}{°F}$

Moderator temperature coefficient of reactivity $= 13.2 \times 10^{-5} \ \frac{\delta K}{°F}$

Reflector temperature coefficient of reactivity $= -3.29 \times 10^{-5} \ \frac{\delta K}{°F}$

122 — **Al-Mobarak, Rashid A.**
Spectroscopic studies of metal complexes of the 5d series.
The University of Wales, 1973.
139 p + 8 programs.

The spin - orbit coupling constant ϑ for the various oxidation states of the first row of transition metals has been calculated using the SCF functions of Richardson et al, and a good agreement is found between the experimental and theoretical values. The calculations carried out here showed that contrary to previous conclusions, fulfilment of the cusp condition may be an overstringent requirement for the suitability of wavefunctions for the calculation of the spin-orbit coupling constant. The effect of covalency upon the magnitude of the spin-orbit coupling constant ϑ is investigated by studying the radial distance dependence of the spin-orbit coupling constant, ϑ (r), and quantitative estimates concerning the extent to which ϑ is affected by covalency have been made.

The electronic spectra of the hexachlore anions of W(V), Re(IV), Pt(IV) and the hexahaloanions of Osmium (IV), osx_6^{2-} (X = F, Cl, Br, I) and of Indium (IV), Irx_6^{2-} (X = F, Cl, Br) have been studied by diffuse reflectance spectroscopy and in all cases for which a ground state orbital degeneracy exists, spin allowed d-d bands due to transitions within the spin-orbit split ground state manifold have been detected and interpreted as arising from transitions between components of $^3T_{1g}$ or $^2T_{2g}$ ground states. The Dq — B parameters of the raditinal ligand field theory (1,2,3) are evaluated for the hexafluoro complexes of the Os(IV) and Ir(IV) where a number of d-d bands are identified, and estimates of the effective ϑ value and of the extent of central field and symmetry restricted covalency for the hexahalo anions of Os((IV) and Ir(IV) are made. The effect of the different halogens upon the nephelauxetic and relativistic ratio in these complexes was studied, and the degree of covalency shown increase in the sequence F < Ce < Br < I.

The optical electronegativity for Os(IV) and Ir(IV) complexes has been evaluated from the positions of lowest Laport-allowed charge-transfer transitions, corrections for relativistic (spin-orbit) effect being taken into account.

the experimental results was obtained. Therefore, it can be concluded that the effect of a sulphone group on conjugated system can be considered to be potentially two-fold, conjugative and inductive.

The effect of V-radiation on butadiene sulphone and succinimide was studied. Butadiene sulphone was polymerised while succinimide was degraded. This we think is due to the absence of the double bond in the case of succinimide.

The ESR spectra of polycrystaline V-irradiated succinimide, succinic anhydride maleimide and maleic anhydride were observed.

121 — **Alsoraya, Ahmed Mohamed**
Fast neutron polarization studies. Edinburgh University, 1976. viii, 168 p., illus.

A considerable disagreement exists between the various experimental results on the polarization of neutrons from the ^2H (d, n)^3 He reaction. Some of these results indicate a peak in the polarization near 100 keV incident deuteron energy, and others do not. All but one of the experimental results differ significantly from the theoretical prediction of polarization by Boersma.

Because of the confused situation regarding the polarization of D-D neutrons and because of the theoretical interest in the results of this reaction and its practical value for users of low energy accelerators, the neutron polarization has been measured in the range from 35 to 275 keV average deuteron energy at a reaction angle of 45° Lab. The polarization is inferred from measurement of the left-right asymmetry induced in elastic scattering from helium at $\sim$ 120° Lab. The polarimeter employed in the experiment consists of a helium gas scintillator detector and two neutron detectors. The three detectors are mounted on a rotatable cradle.

An automatic control system has been designed and constructed from TTL Logical integrated circuits, to enable the polarimeter to be rotated to the desired position for false asymmetry elimination. This system and a direct interface with a computer have helped to achieve a completely automatic data collection.

NUCLEAR PHYSICS

120 — Abdul Jawad, A. M. A.

Electron transfer and γ irradiation studies of sulphones and imides. Cardiff University, 1975.

vi, 116 p. illus.

The work described in this thesis has been concerned with the intepretation of the ESR spectra obtained when dibenzothiophene-, diphenyl-and 4, 4 fluorobiphenyl sulphones in ethereal solution were reacted with alkali metal films.

A kinetic study and of the decay of the anion radical of dibenzothiophene sulphone was carried out. This decay was found to obey second order kinetics and this could be attributed to a dimerization reaction. On further treatment of dibenzothiophene sulphone solutions with alkali metal films a new spectrum was obtained. The analysis of this spectra showed that it consisted of three sets of two equivalent protons and one set of four equivalent protons.

On prolonged standing over the alkali metal films the solutions of dibenzothiophene-, diphenyl, and 4, 4 fluorobiphenyl sulphones gave an intense green solution. The ESR spectra of the green solution was attributed to a biphenyl anion radical. The formation of biphenyl was attributed to the cleavage of the C- S bond due to the addition of an extra electron on the sulphonc compounds.

The ESR spectra of the anion radical aromatic sulphones studied in this work showed the unpaired electron delocalised over the entire molecule. Therefore, the sulphur in the sulphone group is capable of transmitting the unpaired n-electron and consequently must contribute to an orbital of suitable energy and symmetry to the 2Pn orbital of the aromatic rings. Extensive theoretical calculations have been performed using both Huckel and McLachlan M.O. methods for dipenzothiophene - and diphenyl sulphones. A'dorbital' model gave a reasonable agreement for the theoretical and experimental coupling constants.

On using the inductive parameter a very good agreement with

than those grown by the usual chemical vapour transport technique. The growth conditions were optimised and the variation of crystal yield, growth rate and crystal size were studied as a function of both growth time and growth temperature.

The third feature is the study of the lattice spacings variation with temperature, using the Guinier - Lenné X-ray high temperature camera, of the following layer compounds :

(I)	Tin di-sulphide	(SnS_2)
(II)	Tin di-selenide	($Snse_2$)
(III)	Tin sulphur selenide	(SnSSe)
(IV)	Zirconium di-sulphide	((ZrS_2)
()	Hafnium di-sulphide	(HfS_2)
(VI)	Gallium selenide	(GaSe)
(VII)	Titanium di-sulphide	(TiS_2)

The x-ray temperature camera using the parafocussing arrangement was aligned and the thermal expansion coefficients α_a & α_c along the axis «a» and «c» respectively were obtained. The thermal expansion along c-axis was found to be approximately twice that measured along the a-axis of the unit cell.

Chemical decomposition at high temperatures up to 1100°C was studied for the above layer compounds. Intermediate and final phases were indexed on the x-ray powder photographs, and their transformation temperature was recorded.

119 — **Al-Alamy, Fawaz Abdul Sattar**
The Growth parameters, crystal structure and thermal expansion of some transition metal dichalcogenides. Brightion University, 1976.
vii, 325 p.

Three main features comprise the present work.

The first is a study of the growth parameters of layer compounds in the following series :-

(I) — $Sn\,S_x\,Se_{2-x}$ $(0 \leq x \leq 2)$

(II) — $Sn_x\,Zr_{1-x}\,Se_2$ $(0 \leq x \leq 1)$

(III) — $Ta\,S_x\,Se_{2-x}$ $(0 \leq x \leq 2)$

Single crystals of the above materials were successfully grown by chemical vapour transport technique, using iodine as a transporter, with a view to optimisation of the growth conditions. The physical parameters comprising the growth time, the growth temperatures, crystal size lattice spacings, calculated densities and volume of unit cell were all determined. The linear variation in «a» and «c» lattice spacings of the trigonal crystals formed in the first two series has been determined as a function of composition. In the third series polytypism occurred and is generally discussed.

The second feature is the growth of large single crystals of the following layer compounds :

(I) — Tin di-sulphide (SnS_2)

(II) — Gallium selenide ($GaSe$)

(III) — Hafnium di-sulphide (HfS_2)

(IV) — Gallium sulphide (GaS)

The Pendelofen technique was used to obtain single crystals of the above compounds with a surface area nearly five times larger

cients of the continum eigenfunctions are obtainable in closed form. The given physical scattering Hamiltonian is replaced by a model Hamiltoaian in which only the potential is approximated in a well-defined and systematically improvable manner. The model Hamiltonian is subsequently solved exactly, yielding wave functions, phase shifts, elastic and inelastic cross sections, etc. The method requires only L^2 matrix elements and finite matrix operations. The results contain no Kohn-type pscudo-resonances, and can be improved by the Kato correction. The J-matrix method treats the scattering of particles by neutral and charged systems. It is applied to the calculation of physical quantities in e^- — H and e^- — He^+ S-wave scattering processes.

A newly designed cryostat has been constructed for use as an adiabatic demagnetization calorimeter, for measurements of specific heat. By using a double mechanical heat switch, most of the difficulties of the thermal contact have been reduced or removed. The cooling method in such techniques is discussed in this respect.

The ordered alloy Fe_3Al had been studied in order to determine the hyperfine field at the aluminium nucleus. The hyperfine field at the Mn^{55} nucleus in magnanese - chromium alloy has been determined ; this field is discussed in relation to the atomic moments on the manganese atoms.

118 — **Yamani, Hashim Abdulla**

L^2-approach to quantum scattering theory. Harvard University, 1974.

various pages.

In this thesis, we investigate and develop. methods which use purely square-integrable (L^2) functions to solve non-relativistic scattering problems.

Part I contains an investigation of the approximation resulting from the use of a finite L^2-basis set of functions in the framework of the L^2-Fredholm method. We show that employing a finite Laguerre (Slater) or Oscillator (Gaussian) basis, for any partial wave, is equivalent to approximating the spectral representation of the resolvent operator of the zero-order Hamiltonian, H^0, with numerical quadrature of known polynomials. With the help the dispersion correction formula of Heller, a scheme is then presented which permits the calculation of physical scattering quantities directly on the real energy axis, with no error resulting from the finiteness of the basis except in the over-all quadrature sense. The scheme is worked out for both the free and Coulomb Hamiltonians, and is applied to model scattering problems and to the calculation of photo-ionization of Hydrogen.

In Part II, we develop a new (J-matrix) method in which a complete (infinite) basis of L^2-functions is used. This is possible because the zero-order Hamiltonian H^0 is analytically diagonalizable in the complete Laguerre or oscillator basis and the expansion coeffi-

sented through the modified Bessel function of the K th kind of order n. The integers K and n represent the power of the series and the harmonic number respectively, e.g.

$$i_n \alpha\, T_n\, (k \alpha V_p)(\alpha R_T I_s \exp(\alpha R_T I_s). K$$

The power series solutions for the exponential diodes do not normally converge quickly enough to be of practical value for numerical evaluations. A different approach is proposed which is suitable for numerical evaluations of harmonic amplitudes. The results are compared with experimental data on twelve diodes, four in each of the three groups of different types. A good agreement, within the measuring instruments tolerances, was found between the calculated and the experimental results.

Finally, it is believed that such studies were justified as the new method of approach presented evaluates fully the capabilities of these diodes in practice. Many analyses published over the years have tended to introduce severe approximations which were only valid in practice over limited ranges of operation. In this project, attempts were made over almost two years to obtain mathematical solutions for the expontial diode law which are useful in practice and which give accurate prediction of harmonic amplitudes and spectrum. Various methods were employed to achieve the necessary convergence of the infinite series solutions. This involved a good understanding of the mathematical methods employed and computer programming. During the same period at every stage experimental verifications were being attempted, many times unsuccessfully, which finally led to a good agreement between the theory and experimental ressults as shown in this thesis.

117 — Al-Musallam, S. H.
Some specific heat studies of magnetic materials below I K using a double heat switch adiabatic demagnetization calorimeter. Southampton University, 1974.
vii, 107 p., illus.

This thesis is mainly concerned with the measurements of the specific heat of magnetically ordered alloys at low temperatures using an adiabatic demagnetization technique for achieving temperatures below 1°K.

estimated invariant masses is considered in detail and the expected mass resolution in each invariant mass combinations is determined.

With the resolution of ambiguity and the calculated precision of mass determination, resonant particle production is sought. Clear signals corresponding to the production of Δ^{++} η°, f°, A_1^{+} and A_2^{+} are seen. There is some evidence for the N_{γ}^{+} (1700) resonance.

The consideration of mass resolution is preceded by a general consideration of the accuracy of the determination of momentum in the chamber.

116 — **Katib, M. K.**
Evaluation of harmonic generating properties of Schottky barrier Diodes. University of Durham, Department of Applied Physics and Electronics, 1976.
Various pages.

Low noise figure communication receivers require more efficient frequency converters. Frequency conversion and multiplication processes cannot take place without the existence of harmonic sources in the system and the inherent property of a nonlinear element is to generate harmonics. Such nonlinearity, in general, may be provided by semiconductor diodes. This research project deals with the theoretical analysis as well as the experimental verifications of the harmonic generating properties of a nonlinear resistive device, i.e. Schottky-barrier diode.

Laboratory measurements associated with the equivalent circuit representation of hot-carrier diodes show that their i-v characteristics can be accurately described by the modified exponential law, $i = I_S(\exp \alpha (v - iR_T) - 1)$, over a wide range of the applied voltage V. Using this equation, a procedure is developed for the harmonic analysis of the resistive diode and calculation of any of a finite number of harmonic currents having a single frequency sinusoidal voltage $V_p \cos \omega_p t$ as the drive. The amplitudes of the harmonic currents are expressed as a power series in $\alpha R_T I_S \exp(\alpha R_T I_S)$, where the coefficients of the power series are repre-

has essentially the same value of about 60 kOe for all the compounds studied.

The results can be interpreted in terms of contributions to the hyperfine field arising from the transition metal sublattice and from the rare earth sublattice. The former appears to be proportional to the magnetic moment associated with the transition metal ion while the rare earth contribution is taken to arise predominantly from conduction electron polarization.

115 — **Kamakhy, Khalid Ali.**
An analysis of 5 Gev/c, π + p collisions involving many neutral cecondary particles. University of Durham, 1973.
xii, 114 p.

This thesis contains an account of some of the work carried out by the author whilst at Durham University. The work has been carried out by the High Energy Nuclear Physics Group of the University of Durham in collaboration with similar groups from the Universities of Bonn, Nijmegen, Paris, Turin and Strasbourg.

Bubble Chamber analysis is concentrated on those events in which at most there is only one neutral particle involved. The re mainder, the NOFIT events, can often amount to a considerable proportion of the total events unless these are analysed they represent a loss in the total knowledge of the physics of the interaction. The events, in a sense, are of lower quality than the normal sets of events that are analysed, since the later has undergone the fitting process which reduces the effects of measurements and also reduces ambiguities of interpretation.

In this thesis events produced by 5 Gev/c positive pions on protons, in which these are two charged secondary particles and two or more neutral particles have been selected for analysis. The problem of ambiguity of identity of the charged secondaries is discussed at length and a successful method has been devised to divide clearly these two pronged events into those with P π^+ and those with π^+ π^+ as the two charged secondaries.

For each of these groups the effects of measuring errors on the

In chapter III the asymptotic limit as time approaches infinity of the transient solution generated by the impulse is shown to coincide with the time-harmonic solution. This expected result has its implications for the uniqueness of the latter and the relevance of the radiation condition to this uniqueness.

The homogeneous time - harmonic problem in three dimensions is treated in part II. The question of completeness of the solutions to this problem, in a sense to be defined in chapter IV, is partially answered. Their uniqueness is completely established.

114 — **Issa, M.A.A.**

Resonance observations in cubic laves phase rare earth compounds. The Durham University, 1973.

166 p., illus., plates., 30 cm.

N.M.R. Spin Echo spectra of $Gd_{1-x}Y_xAl_2$ and $Gd_{1-x}La_xAl_2$ $(0 \leq x \leq 0.4)$ were studied in the ferromagnetically ordered state at 4.2 K. The Al resonance line profiles were analysed under the assumption of various models for the spatial extent of the conduction electron polarization and general confirmation of RKKY like oscillatory polarization was found. Slowly decreasing nonoscillatory polarization functions were shown to be unable to explain the observed spectra. The line shape has been shown to depend rather critically on the value of the Fermi wave vector K_f The effect of the conduction electron mean free path on the line shape is similar to the K_f .

E.S.R. of Gd in YAl_2 was measured in the temperature range from 65 K to 340 °K. The experimental results are discussed using Hasegawa's theory. The dependence of line width on temperature and Gd — concentration indicates the existence of a «bottleneck» in the relaxation between the conduction electrons and the lattice. The behaviour of the line width with temperature in the ferromagnetic region makes it possible to study the Curie temperature for these compounds.

The hyperfine field at the 59 Co. nucleus have been observed for some of ACo_2 (A — rare earth metal) compounds. The field strength

113 — **Gawaiz, Mohammed Abdelrahman**
Contributions to the theory of Water waves on a sloping beach. University of Wisconsin, 1972.
188 p., illus., 28 cm.

Under certain assumptions, the motion of water waves over a uniformly sloping beach may be posed as a mixed boundary value problem for the Laplace equation, known as the «sloping beach problem.» This problem has been the object of active investigation since the turn of the century, but particularly over the last thirty years. Some of the more significant results, especially as they relate to this study, were obtained by Hanson (6), Miche (17), Lewy (13), Stoker (28), Friedrichs (3), Isaacson (8), Peters (19, 20), Roseau (22, 23, 24), Ursell (30), Lehman (11, 12) and Shen (26), among others. The history and development of the contributions to the solution of the sloping beach problem may be found in Stoker's book (29) on water waves and in Wehausen and Laitone's survey article (31).

The studies mentioned above have been almost exclusively devoted to the time - harmonic motion of water under the influence of constant gravity. The two-dimensional problem was solved by Isaacson (8), Peters (19) and Roseau (22), and the uniqueness of the solution has been established by Lehman and Lewy (12). In addition, solutions to the three-dimensional problem were obtained by Peters (20), Roseau (22, 23, 24) and Ursell (30), and the uniquencess of a class of these solutions was proved in (12), but the completeness of the solutions obtained so far is still an open question.

The work by Shen (26) is on the two-dimensional problem with a pressure disturbance applied to the equilibrium surface of the fluid, which he solved both in the transient and in the time-harmonic (or steady state) case, under boundedness conditions at the shore and at infinity. In chapter I of this study we prove the uniqueness of the transient solution, which is then constructed in chapter II for the case when the pressure disturbance is an oscillatory impulse. Relaxing the boundedness condition at the shore to allow for a logarithmic singularity would seem to be in closer conformity with the physical model, the singularity representing a «sink» where energy is dissipated by the «breaking» of the waves along the shoreline. As it turns out, however, the removal of the boundedness condition at the shore destroys the uniqueness of the solution.

with those obtained by spectrographic analysis. When suitable precautions are taken into account, osmium can be determined in the sponges.

Finally a new system for the solvent extraction of traces of iridium, ruthenium and osmium was investigated. These elements were extracted as ion-association complexes of hexachloro anions into trioctylphosphine oxide (TOPO) in methyl isobutyl ketone (MIBK). Atomic absorption or spectrophotometric finishes are suitable for the determination of these traces.

112 — **Athel, Saleh Abdulrahman.**
Behaviour of a compound pendulum and a gyroscope in an artificial satellite. Stanford University, 1971.
xiii, 193 p. illus., 28 Cm.

This work deals with two topics, the behavior of a compound pendulum and a two-gimbal gyroscope inside an artificial satellite, the mass center of which presumed to move in a circular orbit while the satellite rotates at a constant rate about the normal to the orbit plane.

In Chapter I, the equation of motion of a rigid body which is constrained to rotate about an axis fixed in an artificial satellite is derived, and particular solutions of this equation are discussed. Two illustrative examples indicate possible uses of such a system as a device for establishing an attitude reference or for detecting variations in satellite rotation rates.

In Chapter II, the equations of motion of a two-gimbal gyroscope inside a rotating artificial satellite are derived ; the mathematical equivalence of the problems of a gyroscope with a «driven» and a «free» rotor is established ; and it is shown, under certain conditions, there exist approximate solutions describing motions during which the spin-axis of the rotor remains nearly fixed in inertial space. As an example in the use of these results, two gyroscopes are employed for attitude control of an earth-pointing satellite, and the performance is compared with that of an attitude control system based on «elementary» gyro theory.

111 — **Ashy, Mohamed Ahmed Abdullah.**
Studies in metallurgical analysis involving differential spectrophotometry and atomic absorption spectroscopy. University of Sheffield, 1973.
139 p. plts.

This thesis describes studies in the determination of major and trace elements in metals and alloys using some spectroscopic techniques.

A methods is described for the determination of molybdenum in ferromolybdenum alloys using differential spectrophotometry. It is based on the reduction of both molybdenum and iron by mild reducing agents followed by spectrophotometric measurements on the resulting molybdenum (V) species. The method is applicable to a wide range of molybdenum concentrations and alloys with molybdenum contents between 46-75% were analysed.

An Induction Heated Graphite furnace was evaluated, as a non-flame method for atomization in atomic absorption spectroscopy, for the determination of trace amounts of some elements in alloys and in solutions. Elements, including zinc, tin, silver and a aluminium, were determined directly in alloys and steel samples without prior dissolution. Between 1-10 mg of solid samples were used and the relative standard deviations for these determinations were between 4-10% depending on the element under study. This furnace is very useful for the determination of trace amounts of readily volatile elements at ppm levels when the conventional method is not sensitive enough.

A method is described for the simultaneous determination of iridium and rutheium in rhodium sponge. This method involved a solvent extraction of the methyltriphenylphosphonium hexachloro complexes of thsee elements into chloroform and a preconcentration step of the organic solvent prior to aspiration into a flame. 10-500 μ gg $^{-1}$ of iridium and ruthenium can be determined. Besults for eleven samples of rhodium sponges are reported and are comparable



PHYSICS

plete investigation of the subgroups for the largest mathieu group M_{24} , from which the corresponding results for the others can be deduced, is carried out in Chapter 3.

As a next step it seems natural to proceed to the large Conway group because this contains the Mathieu group M_{24} and is essentially dependent on M_{24} for its construction. It may therefore be regarded in some sense as a generalization of M_{24} It has also the advantage of containing more than half of the exceptional simple groups so far discovered.

In order to make the subgroups H more interesting, attention has been focussed on cases $n = 8$ and 16. $< 2,3,8 >$-groups appear already in M_{24} and these have been classified completely in Chapter 2. It might be thought that, for a given group G, the subgroups with $n = 2^r$ should be subject to increasingly strong restrictions for ascending values of r. In fact the distribution of such group in the Conway groups seems extremely complicated. In the present work attention has been restricted to subgroubs appearing in the monomial group. It is shown that there are exactly 221 orbits of $< 2,3,8 >$-subgroups and 92 of $< 2, 3, 16 >$-subgroups. Explicit generators are given for representative groups in each of these orbits. Because of the labour involved in obtaining these results, it has not been possible to treat in this thesis the isomorphism classes of $< 2,3,n >$-groups of the orders involved. Most of the groups involved are therefore only described up to principal factors.

For certain classes of involutions and elements of order 3, the study of H exhausts the $< 2,3,16 >$-groups of the Conway group. It is hoped that the description of these orbits will be of value in the classification of the subgroups of the Conway group.

As an addendum to the main work of the thesis, a study has been made of $< 2,3,8 >$ and $< 2,3,16 >$-groups with faithful permutation representations of low degree. Some of these results are presented in Chapters 6 and 7. It has incidentally been verified that $\mathfrak{S}_n$ is a $< 2,3,16 >$-groups for $16 \leq n \leq 35$, and that A_n is a $< 2,3,16 >$-group for $n \neq 23$ and $18 \leq n \leq 35$.

The main conclusions of the various analysis carried through are summarized at the end of the thesis in Tables I-V. A list of some $< 2,3,16 >$-groups of degree less than 35 is appended as Table VI.

to overcome them. Then, we consider suitable definitions for stability of numerical methods for solving DDEs.

In chapter IV, we consider the analysis of specific numerical methods of Runge-Kutta type for solving DDE. In particular, we consider ways of approximating the delay term and the effect of this approximation on the properties of the numerical methods considered.

Finally, in Chapter V, a description of algorithms for solving initial function problem in DDE with a variable stepsize is given. The properties of these methods are verified by considering a variety of test problems.

110 — Al-Salman, Salman A.M.
On some $\langle 2,3,n \rangle$ -groups. University of Birmingham, 1973. 138 + X p., 28 cm.

The study of the distribution of the 2-generator subgroups of a given finite group G may be considered as a first natural generalization of the study of its cyclic subgroups. Since these latter play such a crucial role in all studies of finite groups, in particular in the description of linear representations, it might be expected that important aspects of the group G would appear in the analysis of the next case. The first difficulty is however an enormous increase in complexity - probably every finite simple group is itself a 2-generator group.

As a first restriction one might consider only generators of given prime order. A subgroup H of G is called an $e \langle m, n \rangle$ group if it can be generated by two elements of orders e and m and if the product of these elements has order n. Sin $\langle 2, 2, n \rangle$-groups are dihedral, the simplest nontrivial case is that in which the orders of the generators are 2 and 3. The present thesis is concerned with this case, with the additional restriction that n be a power of 2.

If $n=4$ then $H \cong S_4$ the symmetric group four symbols. Thus the first case to be examined is the distribution of the subgroups isomorphic to S_4. As it seems of particular interest to carry through the programme for simple or nearly simple groups G, and in particular for the case when G is an exceptional simple group, the analysis has been carried through first for the family of Mathieu groups. A com-

show that the normal elements of a proper * algebra belong to A. If is a Baer * factor we obtain some crucial necessary conditions for an element to belong to A. It is also shown that in a Baer * factor , an element x belongs to A if and only if x = x^2, x^3 '.

Sections 2 and 3 deal with the algebra B(H) of bounded operators on a Hilbert space H. We change our notation to A (H) instead of B $(H)_A$. In section 2 we find some necessary and sufficient conditions for an algebraic operator to belong to A (H), and we show by examples that these results do not hold for arbitrary operators, We also exhibit some sufficient conditions for an arbitrary operator to belong to A (H). In section 3 we specialize to spectral operators. We obtain conditions on the scalar part and the quasinilpotent part of a spectral operator T that will make T belong to A (H).

109 — **Al-Mutib, Ahmad Nasir**
Computational methods for solving delay differential equations. Victoria University, 1977.
vii, 123 p.

This thesis is concerned with the adaptation of numerical methods for solving initial value problems in ordinary differential equations to the problem of delay-differential equations.

In chapter I, the definition of delay differential equations and the areas where they arise are given, together with a brief discussion of numerical methods for solving initial value problems in ODE, a review of existing numerical methods for solving DDE with their avantages and limitations, and a discussion of recent work on the stability properties of numerical methods.

In chapter II, we start by giving a review of the work done on the theory of DDEs, then we state theorems specifying conditions for the existence and uniqueness of the solution of DDEs. Then we discuss one of the characteristics of DDEs, that the derivative of the solution may have delay induced jump discontinuities. Finally we consider analytical methods for solving a system of linear DDEs, and give results concerning asymptotic properties of the solution.

In chapter III, we consider in general the difficulties arising in the adaptation of numerical methods to solve DDE, and discuss ways

Investigating the algebra $l^1(F_2)$, we found that it has many other special properties, some of which are also properties of the algebra of holomorphic functions in two variables. The algebra $l^1(F_2)$ has a natural involution that makes it into a proper, ordered * algebra.

The goal of Chapter I is to abstract and analyze the various special properties of the algebra $l^1(F_2)$. Given an algebra , we let $_A$ = x E : x = x , x for all relatively prime positive integers m and n where S' denotes the commutant of S for all S . The main result of Chapter I shows that $_A$= if and only if has no nilpotent elements, where is any nil semi simple ring with identity. We also find some equivalences for the condition that has no quasinilpotent elements, where is a Banach algebra over the complex field. In section 2 of Chapter I we add the condition that has no idempotents. We show that in Banah algebras, this condition together with the absence of nilpotent elements insures the absence of algebraic elements. In section 3 we show that if we strengthen this condition on a Banach algebra by requiring that the spectral radius is a norm on , then is commutative. Some other commutativity results are obtained as variations of this result.

In Chapter II we study the algebra $l^1(F_2)$ in detail. Section 1 deals with the various properties of $l^1(F_2)$, and it is shown that $l^1(F^2)$ has a * homomorphism θ onto the algebra of holomorphic functions in two variables over the unit ball of C x C where C denotes the field of complex numbers. It is shown that the latter algebra is the «largest» continuous commutative image of $l^1(F_2)$ under a homomorphism, in the sense that any continuous homomorphism of $l^1(F^2)$ onto a commutative Banach algebra is the composition of another homomorphism with θ .

Sections 2 and 3 deal with some special elements of $l^1(F_2)$. In section 2 a special class of elements is introduced and the spectrum of each element in this class is given. Section 3 deals with commutation relation some of which hold for special classes of elements, and some of which hold in general.

Chapter III contains the main results of this work. In Chapter III we exhibit some necessary and some sufficient conditions for an element in an algebra to belong to A. In section 1 we study the general properties of the set in arbitrary rings, then we we specialize to * algebras, and in particular to Baer * algebras

Näherung für die Magnetisierung Formeln hergeleitet, die der numerischen Aueswertung zugänglich sind.

Die übereinstimmung der Ergebnisse mit dem experimentellen Befund (im oszillierenden Bereich) ist sehr gut. Der Grund für die weniger gute übereinatim in Quantengrenzfall dürfte in der stark vereinfachten Behandlung des Gitterpotentials und des Störstellenpotentials liegen. In den von uns betrachteten Materialien, insbesondere in InSb, sind verhältnismäBig Starke nichtparabolizitäten der Bänder vorhanden deren EinfluB im Rahmen des Dingle. Modells von Bliex (11) untersuch wurden und sick als von enstscheidender Bedeutung für den Verlauf des magnetischen Momentes im Quantengrenzfall erwiesen haben. Ferner ist zu rewarten, daB die Verwendung von abgeschirmten Coulomb-Potentialen (insbesondere bei konsistenter Bestimmung der Abschirmung im starken Magnetfeld) die Ubereinstimmung von Theorie und Expeéiment im Quantengrenzfall wesentlich verbessern würde.

Zu erwägen wäre auch eine verbesserte Störungstheorie durch Berücksichtigung aller der Störstellenkonzentration proportionalen Anteile, etwa in der selbstkonsistenten T-Matrix - Näherung STMA (Vergl. Gerhardts und Hajdu (7).).

108 — Al-Moajil, Abdullah Hamad

Nilpotency and quasinilpotency in banach algebras. University of Oregon, 1973.

v, 71 p.

It was shown by Kaplansky (3) that if a B* algebra has no nilpotent elements then it is commutative. The same method of proof was uded by Zelasko to show that this is also true for group algebras over locally compact groups (6).

A natural question to raise in this direction is whether this is true for arbitrary Banach algebras over the complex field. W. L. Paschke pointed out to us that the free semigroup algebra $l^1(F_2)$ is a non-commutative complex Banach algebra which has the more restrictive property of not having any quasinilpotent elements. This was the starting point of this work.

In Section 3, we discuss multistep diagonally implicit Rung-Kutta methods. These methods will be A-stable provided that the spectral radius of a certain matrix G (z) is less than one for Re $z < 0$. We develop two 4th order methods ; one is a 3-step stiffly A-stable method and the oteer is a 2-step method which is only A-stable.

These methods are 2-stage methods, i.e., they require that we solve two implicit equation per time step. These two methods are then compared (with respect to period elongation and amplitude decay) with the specialized methods found in Wilson (3).

In Section 4, two other methods which are 3rd order and 4th order are given. Again one of these methods will be stiffly A-stable while the other is only A-stable. These methods can be considered 1-1/2-stage methods since they require that we solve three implicit equations to obtain two values of the unknown function.

In Section 5, we look at the uniform approximation of e^{-tA} for operators A of sectorial nature. This is essentially the analysis needed to treat the equation $y' = Ay$, $y(0) = y0$, when it is approximated by any of the stiffly A-stable methods mentioned earlier. The essential tool of analysis is the Cauchy integral formula which is used to represent f(A), where f is a holomorphic function in some sector of the complex plane. We start by stating Miller's theorem on the uniform approximation in operator norm of e^{-tA}. We then obtain an immediate corollary which shows that the error bounds are improved when the initial value y_0 is smooth. Secondary, we show that the same type analysis may be extended to obtain error-bounds for multistep methods such as Gear's 2nd order method.

In Section 6, this type of analysis is extended to the inhomogeneous equation $y' = -Ay + \infty (t)$, $y(0) = y_0$. Here we consider Miller's 2nd order and 3rd methods.

107 — **Al-Masari, Mohammed**
De Haas - vanalphen-effekt in halbleitern. Koln, Universitat zu Koln - Mathematische - Naturwissenschaftlichen Fakultat, 1975.
39. p.

Wir haben unter Verwendung der verallgemeinerten Born' schen

Examples of these systems are found in structural dynamics in mechanical engineering (see Wilson «3»(and also in many electronic networks with inductances. For parabolic differential equations, however, it is sufficient for the method to be A (a) -stable, for some a $\in$ $(0, \pi/2)$, i.e., the region of absolute stability should include the sector K λ: Re K $\lambda < 0$, arg (-k λ) $<$ a) in the complex λ -plane. This is so because parabolic equations tend to have spectrum inside a narrow sector about the positive axis (the spectrum is contained in the numerical range, which is contained in a parabola).

Methods which are A-stable are necessarily implicit. Dahlquist (6) has shown that linear multistep methods cannot be A-stable if their order is greater than two and that in fact the trapezoid rule is the 2nd order method with the smallest error constant.

Axelsson (2) shows that certain m-stage **fully implicit** Runge-Kutta methods based on Radau quadrauture are A-stable. These methods, unfortunately, require that we solve a system of m implicit equations simultaneously. This is often not an easy task, particularly if the equation is not linear. In this paper, however, we will consider only Rung-Kutta methods which are diagonally implicit, that is, one is required only to solve a single implicit equation at each of the m successive stages of the method.

We also mention that Rosenbrock has also designed semi-implicit Rung-Kutta methods which make use of $f' = \partial f / \partial y$ (see Axeisson (2) and Rosenbrock (12). In Wilson (3), a class of specialized methods for linear second order systems arising in structural dynamics is discussed. These methods turn out to be nearly absolutely stable for all eigenfrequencies.

In Section 2, one step diagonally implicit Runge-Kutta methods are presented. Applying such a method to the test equation $y' = \lambda y$ amounts to approximating $e^{\lambda K}$ by a rational function R (λk) with real poles in contrast to fully implicit Runge-Kutta methods which usually have complex poles. Miller (11) designed two such methods. His 2nd order method is a 2-stage method and his 3rd order method is a 3-stage method. Both of these methods are also strongly stable at infinite, i.e., lim $|R(K\lambda)| = 0$. We will derive a 3rd order 2-stage method which is not strongly stable at infinity. We will also derive three 4th order methods which are strongly stable at infinity, although some of the intermediate stages are not.

In Chapter 5, we study the group of units of Galois rings, rings with fewer zero divisors, near Galois rings, commutative principal completely primary rings, rings with property (Z) and commutative completely primary rings of characteristic P.

It is already known that if R is a completely primary ring and G is a p-group where $p \in J(R)$, then RG is completely primary. Finally, in the same Chapter we find necessary and sufficient conditions for a certain group to be the group of units of RG where R is finte field end G is a finite cyclic p-group.

106 — **Kurdi, Mohammad Amin**
Stable high order methods for time discretization of stiff differential equations. University of California, n.d.
viii, 71 p.

Consider the ordinary differential equation

$$y' = f(t, y),$$
$$y(0) = y_0 \quad , t \geq 0.$$

Problems in many areas if application give rise to systems which are «stiff». That is, their solutions have certain major components which die out slowly and other transient components which are damped out almost immediately by the differential equation. In terms of the linearized equation without forcing terms, this means that some eigenvalues λ have real part Re λ much, much larger than others. Numerical difference methods which are «stiffly stable» act upon such systems as does the differential equation itself, rapidly damping out the quickly decaying transients, while at the same time accurately following the behavior of the smoother components of the solution. Most importantly, we can do this without being forced into excessively short time steps.

For many problems the numerical methods used to approximate their solutions should also be required to be A-stable, i.e., the region of absolute stability should include the whole left half plane in the complex $k\lambda$-plane (see, for example Dahlquist (6) or Gear (8). Such problems correspond to a stiff system some of whose very large eigenvalues have arg (λ) very close to π /2, in other words, the corresponding transient eigensolutions oscillates many times before decaying appreciably, even though its decay rate $e(\lambda)t$ is very great.

By a **near Galois ring** R we mean a completely primary ring R of order $p^{(n+1)r}$, where char R $= p^n$ and R/J $= p^r$. This class of rings was first introduced by Rehavendran (27) who gave their enumeration in the case where they are commutative and $n > 1$. In section 1 of Chapter 3 we give a method for constructing all near Galois rings, determine their enumeration and obtain as a particular case the enumeration in (27). We also determine the group of automorphisms of such rings.

It is easy to establish (see Chapter 1) that if a ring R has N ≥ 2 zero divisors then R $\leq N^2$. By a **ring with fewer zero divisors** we mean a ring of order N^2 and containing N (≥ 2) zero divisors (zero included). In (13), Corbas and in (27), Rehavendran gave the construction of such rings. In section 2 of Chapter 3 we give another construction of rings with fewer zero divisors, show that there are only r + 1 mutually non-isomorphic rings with fewer zero divisors, where $/R/J/ = p^r$, and determine the group of automorphisms of such rings. We also provide alternative characterizations of these rings.

With the notation introduced above, we noticed that in a completely primary ring $J^m = 0$. It is known that for a principal completely primary ring, m is the index of nilpotency of J (i.e. $J^m = 0$, $J^{m-1} = 0$). In section 1 of Chapter 4 we establish the converse of this result ; as a consequence we establish that a completely primary ring is Galois iff it is principal and n is the index of nilpotency of J.

In (11), Clark determined the number of isomorphism classes of a particular type of commutative principal completely primary rings. In section 1 of Chapter 4 we generalize Clark's result to the non-commutative case. We also study the group of automorphisms of such rings. Finally in the same section we enumerate principal completely primary rings of characteristic p and determine the group of automorphisms of such rings in the commutative case.

Let R be a ring (not necessarily completely primary) in which the multiplication of any two zero divisors is zero ; R is called a ring **with pfoperty** (Z). These rings were first introduced by Corbas (14) who gave their construction. In section 2 of Chapter 4 we give a new construction of such rings and determine their enumeration.

rings). The aim of this thesis is to study four aspects of finite completely primary rings : their construction, enumeration, group of automorphisms and group of units.

Let R be a completely primary ring; then it turns out that R has a unique maximal ideal J (its Jacobson radical), $|R| = p^{m2}$, $R/J = GF(p^r)$, char $R = p^n$, $1 \leq n \leq m$ and $J^m = 0$, for some prime P and positive integers m, n, r. In particular, if n = m, these rings were first introduced by Krull (1924) and since then rediscovered by others; following the general trend we call such a ring a **Galois ring of the form** $GR(p^{nr}, p^n)$. These rings are uniquely determined by p, n, r. They are commutative principal rings and behave in many ways like Galois fields ; their classification is completely known. The study of maximal Galois subrings of completely primary rings is used as an important tool in our study of completely primary rings.

Let R be a completely primary ring, $R/J = p^r$, char $R = p^n$ and R_0 be a subring of R ; R_0 is called a **coefficient subring of** R if $R_0/pR_0 = R/J$. In [9] Clark proved that R ha sa coefficient subring R_0 which is a Galois ring of the form $GR(p^{nr}, p^r)$. In section 1 of Chapter 2 we study Galois rings, give an alternative construction of them and prove that every maximal Galois subring of a completely primary ring is a coefficient subring of it.

In (27) Raghavendran stated erroneously that subrings of Galois rings are Galois subrings. A trivial, alas false, consequence of this is that the interesection of Galois subrings is a Galois subring. In section 2 of Chapter 2 we provide suitable counter example and find necessary and sufficient conditions for subrings of Galois rings to be Galois subrings and for the intersection of Galois subrings to be a Galois subring.

In (34), Writ proved that if R is a completely primary ring and R_0 is a coefficient subring of R then $\exists\ \theta_1, \ldots, \theta_k \in J$ and $\sigma_1, \ldots, \sigma_k \in \mathrm{Aut}\, R_0$ such that $R = R_0 \oplus \sum_{i=1}^{k} R_0 \theta_i$ and $\theta_i r = r^{\sigma_i} \theta_i$ $\forall\ r \in R_0$ and $\forall\ i = 1, \ldots, k$. In section 3 of Chapter 1 we provide a simpler proof of this fact and prove that $\sigma_1, \ldots, \sigma_k$ are uniquely determined by R and R_0

tions for solving third-and fourth-degree equations. However, the actual algebraic solutions to those two higher degree equations did not come until centuries later, during the Italian Renaissance.

In the domain of trigonometry, the theory of sine, cosine, and tangent was developed by the Arabians, with Mohammed ibn Jabir al-Battani being considered «the father» in this field of mathematics. The Arabians worked diligently in the development of plane and spherical trigonometry and proceeded to establish the subject as a science independent of astronomy.

In the field of geometry, the Arabian mathematicians did not add much to the work of the Alexandrians and the Greeks except for translating and interpreting Greek contributions into Arabic, solving various problems, and making comments. Abu Ali al-Hasan ibn al-Haitham and Thabit ibn Kurra were the foremost workers in this project. They kept the science alive when other people were ignoring it. For example, Europe received its Greek geometry from the Arabians.

To summarize the achievements of the Arabian mathematicians, it can be said that they first developed the number theory in both mathematical and metaphysical aspects. They generalized the concept of numbers beyond what was known by the Greeks. They developed and systematized the science of algebra and preserved its link with geometry. The work of the Greeks in plane and solid geometry was continued. Finally, the Arabians developed trigonometry, both plane and solid, working up accurate tables for the trigonometric functions and discovering many trigonometric identities.

105 — **Al-Khamees, Yousaf A.**
Finite completely Primary Rings on their construction, enumeration, groups of automorphisms & group of Units. Reading University, 1977.
ix, 123 p.

All rings are associative, have an identity and (with few obvious exceptions (e.g. Z, R [x], etc.) are finite. A finite ring is **completely primary** if its zero divisors form an ideal. Recently there has been some interest in the study of such rings because it is felt that they might play an important role in classifying finite rigns (for instance, a finite commutative ring is a direct sum of completely primary

104 — **Daffa, Ali A.**
A Brief history of Arabian contributions to mathematics. East Texas State University, 1973.
vii, 178 p.

This study presents a brief history of the principal Arabian contributions to mathematics during the Golden Age of Arabian learning approximately from the seventh through the thirteen centuries. It was during this period that Arabian culture exerted powerful economic, political, and religious influences over a large part of the civilized world. Nor was the work of the Arabian scholars limited to religion, business, and government. They researched and extended the theoretical and applied sciences of the Greeks and Romans of an earlier era in ways that preserved and strengthened man's knowledge in these important fields.

Although the main objective of this investigation was to trace the history of the Arabian contributions to mathematics during the European Dark Ages, some effort was made to explain the progress of mathematical though and its effects upon present-day culture. Certain Arabian mathematicians are mentioned because of the important nature of their ideas in the evolution of mathematical thinking during this earlier era.

Arabian mathematicians invented the present arithmetical decimal system and the fundamental operation connected with it addition, subtraction, multiplication, division, raising to a power, and extracting the root. They also introduced the «zero» symbol to Western culture which simplified considerably the entire arithmatical system and its fundamental operations.

During the ninth century Al-Khwarizmi, the «founder of algebra,» transformed number from its earlier arithmetic character as a finite magnitude into an element of relation of infinite possibilities. He also found a method to solve equations of the first and second degree in one unknown in both algebraic and geometric fashion.

In addition to devising methods for solving simultaneous linear and quadratic equations, Arabian mathematicians laid the founda-



MATHEMATICS

103 — **Obaid, Thoraya Ahmed**
The Moor figure in English Renaissance drama. Michigan, Wayne State University, 1974.
611 p.

As a result of this study, one can conclude that there are two types of Moors : the historical and the literary Moor. Saladin (Salah al-Din) in the Levant, al-Mansur in Andalusia (Muslim Spain) and Abdelmelek (Abd al-Malik) and Mahumet (Muhammad) in North Africa represent the historical Moors with whom medieval and Renaissance Europe came into contact. The Crusades, the Muslim rule in Spain, the medieval Christian-Muslim polemics, and medieval and Renaissance commerce, especially between England and North Africa, constituted the main historical events from which the literary Moor was derived. The accounts of merchants in North Africa and medieval and Renaissance Christian epics and romances became the literary sources of the Moor figure found in English Renaissance drama. Through travellers, chroniclers, crusaders, geographers, and poets, certain qualities were directly associated with the Moor : cruelty, lasciviousness, exoticism, eloquence, wrathfulness, and passion.

Disregarding the amicable relations between England and North Africa, the English Renaissance dramatists built their dramatic Moor on Europe's interpretation of the historical Moor.

In English Renaissance drama, the Moorish dramatic personae fulfilled a number of functions. First, the physical appearance of the Moor was an important factor in setting him off quickly from the other characters in the plays. The playwrights discovered a new dramatic wealth based on color and feature. They used symbolism and images to express their ideas. The dramatists were also assured of the audience's prejudices and false notions. In other words, the plays were enhanced by the physical appearance of the Moorish characters. Secondly, the Muslim religion served as a foil for Christian values and ethical standards. Thirdly, the Moors added an exotic aura to the settings and plots in which they participated. Fourthly, the dramatists were able to express their ideas in a totally new and fresh way. Finally, the Moorish dramatis personae became a mirror which reflects the social consciousness of the English society.

LITERATURE - ENGLISH

102 — **Khattab, Ezzat Abdulmajeed**
The Critical reception of Browning's the ring and the book : 1868 - 1889 and 1951 - 1968. University of New Mexico, 1969. viii, 288 p.

This study is a survey of the criticism of **The Ring and the Book** published during the periods 1868-1889 and 1951-1968. Since its publication, the poem has been acclaimed as one of the most important poetic works of the nineteenth century, and an emormous amount of criticism has been written about it. It is felt, therefore, that a survey of its criticism will help to chart the main trends in the criticism of poetry in England and America.

The first two chapters deal with the criticism of **The Ring and the Book** between 1868-1889, that is, from its publication to the death of Browing. The third chapter deals very briefly with the period 1890-1950, which is regardcd as transitional. The fourth chapter deals with the criticism between 1951-1968.

The conclusions arrived at are : First, it is not surprsing to find that the approach and method of the Victorians differ from those of twentieth-century critics. The kind of questions of Victorians asked about **The Ring and the Book**, e.g., about its message, the nobleness of its subject, and whether it is easy to understand, is no longer asked by the moderns. The emphasis in modern criticism falls upon such topics as the imagery, the archetypal patterns found in the poem, and the structural significance of these patterns. Yet., **The Ring and the Book**, by challenging the Victorians' assumptions about how a poetic masterpiece should be, made the Victorians gradually realize that a poetic masterpiece written in the nineteenth century need not follow classical or renaissance examples. Second, as a corollary to this realization, we find in the Victorian criticism of this poem, especially in the 1880's, so many little insights similar to those of modern criticism, that, given the vistas of knowledge the moderns enjoy and the systematic method they use, the Victorians may have arrived at the same conclusions.

events of this earliest stage of Islam might have encouraged others, years later, to fabricate such poetry.

At the end of this last chapter we have indicated the extent of the influence of Islam on the poetic talents of Ka'b b. Malik, a pre-Islamic poet who a few years later became an ardent Muslim.

Finally at the end of this thesis we append lists containing the total of the extant verses ascribed to 'Abd Allah b. az-Ziba' ra, Dirar b. al-Khattab, Abd Allah b. Rawaha and Abu Qays b. al-Aslat. None of the poetry of these poets has been collected into a Diwan and is still only to be found scattered in various sources.[1] In addition we give the name of the main sources where these ascribed verses are found, together with the occasion on which the verses were recited.

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1) Recently Hasan M. ba-Jaouda has published a book containing considerable number of poems or fragment of verses attributed to Abu Qays b. al-Aslat.

were involved. A brief historical summary of the wars of al-Fijar is given together with references to the main works which contain a vast amount of information on the subject. In addition we have analysed the poems and discussed their authenticity. The last section of the first chapter is a summary and a critical study of the lives and the poetry of two Meccan poets whose poetry and actions played a vital role during the early period of Islam.

The second chapter is divided into four sections and each section is itself subdivided. The first section is concerned with the inhabitants of Yathrib. Here we have tried to shed some light on the original home of both the Arabs and the Jews and their position in Yathrib before the rise of Islam. The second section discusses the lives of those Medinan poets included by Ibn Sallam whom he considered the master of their art. A summary of their lives and a critical study of their poetry has been appended. In the third section we have reviewed the tribal feuds of Yathrib, discussed the causes of these feuds, critically examined some of the historical accounts describing the warfare between al-Aws and al-Khazraj. The fourth section is a translation of an account included in the **Kitab al-Aghani**, concerning the battle of Bu'ath with the intention of giving a historical background of that battle and further to show the historical value of that poetry by comparing these two sources. The last two parts in this section are an investigation of the Medinan pre-Islamic poetry describing war, battle-scenes and the instruments of war used in the fighting between al-Aws and al-Khazaraj. There is a separate discussion of verses describing war, swords, spears, coats of mail, helmets, javelins, armies, squadrons, striking, stabbing retreat and poetic exaggeration. In addition we have noted the vivid expressions and the images used by the poets. At the end of the last part we have attempted to examine the poetic expressions and how they were related to the poets and how the poets derived them from their environment. We have also attempted to determine the extent to which war had influenced the poetic talents of the Awsite and the Khazrajite poets who apparently too have direct experience of fighting. We have analysed four of their poems all of which refer to the battle of Bu'ath.

The last chapter is devoted to a consideration of the development of martial poetry in Mecca and Medina after the rise of Islam. Before dealing with the poetry describing the battle of Badr and Uhud we have given an outline of the momentous events which took place in both Mecca and Medina. Here we have demonstrated how the

tury European novels, they do represent a new departure in the case of the Egyptian novel. Whereas interests in the earlier three phases were on the whole local, in Phase four they are unmistakably universalised even when not exactly modernistic In section two of Chapter 4, he deals with particularly modernistic novels. As regards subjects matter, modernism finds expression in existentialism, «absurdity», socio-political and metaphysical «revolt» and kindred interests. Technically, it finds expression in experimentation with such things as time sequence, point of view, varied-narration methods and difficulty.

Remanticism, which he discusses i na minor section in Chapter 4, shows further development in terms of sophistication and literary merit, he also deals briefly with the resentment o fthe abuses of political and economic power by the new Egyptian Establishment.

In Appendix A he makes a brief comparison between two different editions of **Azhar ash-Shawk** by Abu Hadid to show that he effected an adjustment in his earlier attitude to make it more suitable to the situation in Egypt after the 1952 Revolution. In Appendix B, he deals with the **Trilogy** and later novels of Najib Mahfuz (which he has treated in an appendix for reasons he explains towards the end of the Preface). But readers who prefer to see that part of the thesis in its chronologically more appropriate place, can read Appendix B.

101 — Al-Jarbu, Abd Allah Sulayman
Martial poetry in Mecca and Medina in the late pre-Islamic and early Islamic periods. Edinburgh University, 1974. xv, 417 p.

In the first and second part of the first chapter an attempt is made to indicate to the reader the weakness and the scantiness of the Meccan pre-Islamic poetry. In the first pages of the thesis the most authentic collections of Arabic poetry compiled during the Abbasid period are reviewed, and it is noted that Meccan poetry is almost absent from these.

The second part is a close examination of some of Ibn Sallam's remarks on the Meccan poetry and its poets. The third section deals with the poems said to describe the incidents of the Elephant and the wars of al-Fijar, two historical events in which the Meccan people

industrialised and capitalistic. These younger novelists have also been more exposed to theories about the history and structure of human society (that emerged during the last half of the 19th Century but were becoming more and more established early in the 20th.), and to popularized science that was becoming more and more available to sufficiently educated persons in Egypt.

Thus the pre-occupation of these younger novelists (e.g. Mahfuz, Adil Kamil and Luwis Awad) have been more socio-political and economic than literary and cultural. There is also a distinct intellectualization of content in their novels. Their psychological interests are much influenced by Freudian sex psychology and his emphasis on the tremendous influence of people's sexuality on their psychological make-up and behaviour.

Romanticism, too, improve during this phase at the hands of Muhammad Abd al-Halim Abdallah who concerns himself with the study of romantic love, its intensity, pains and obsessiveness as well as its transience and also with people's belated quest of elusive happiness.

Technically, Adil Kamil experiments with the cinematic techniques of re-arranged sequence, flashback, parallel development in his Millim. Awad uses mythology for imparting universality and timelessness to his contemporary socio-political and metaphysical preoccupations. Mahfuz surveys parts of Old Cairo and introduces persons and families from the lower middle class or even from somewhat lower on the social ladder in detailed, solid, non-experimental manner.

Phase Three deels with novels written during the first years of the Revolution. Here he finds very little technical development but distinctly new interests and a clear general re-orientation in terms of subject matter. The emphasis now is on patriotism, populism, hope and commitment.

Phase Four shows yet a new orientation in terms of both interests and technique perhaps resulting mainly from disillusionment with, and alienation from, the Revolution. He divides this fourth Phase (Chapter Four) into two main sections. In the first section, he deals with what he calls pre-modernism where, although the interests and technical aspects are quite traditional, resembling late 19th Cen-

Ismail. he also shows the influence on the emergence of the novel of European critiques of Egyptian culture and society and the encroachment of Europe that cultimated in the British Occupation of Egypt in 1882.

He divides the main body of the thesis into four chapters, each covering a Phase of the four phases he distinguishs from each other in the history of the Egyptian novei of literary merit according to the main thematic / technical aspects he finds in each of them.

In Chapter One, he deals with novels written between 1912, the true date of the publication of Haikal's **Zainab** (which, in agreement with general critical opinion, he considers the first novel of literary merit to appear in Egypt) and the outbreak of World War Two. The two main interests that can be found in the novels of this Plase are, first the authors' finding inspiration in Egyptian characters, places, and the physical, as well as certain elements of the social and cultural environments, and, secondly, their criticism of aspects of their Arab-Islamic culture and society. Other aspects of the novels of this Phase are the self-projection of the early novelists who, being very few and pioneering in this field, had prestige and glamour at least among the literary - and semi-literary oriented people in Egypt and the Arab World. There was a fair deal of interest in romantic and sensational love, some comedy and humour, attempts at psychological analysis and, probably under the influence of the 19th Century Russian novel.

Technically, the phase is characterised by a general shifting of emphasis from escapism, anecdotal or pre-novel forms of fiction or primitive sermon-like educative narration to local relevance and inspiration, and a desire to portray and evoke local characters, places, manners and atmosphere. There was also a fairly successful struggle on the part of most of these early novelists to create a style suitable for the novel and freed from the conventions of the highly mannered and excessively rhythmic and rhymed style that had plagued Arabic literary writing for many centuries.

Phase Two covers the period from the mid or late 1930s until the 1952 Revolution. This was a period of socio-politico-economic crises where a younger generation that had a more modern education and whose background had been formed exclusively by living in the complex society of a modern Egypt which was getting more and more

its original character. Thus grammatical mistakes, for instance, are to be read every now and then. We deem this practice necessary since we are dealing with a peculiar type of poetry. But such peculiarities have not passed unnoted. While the foot-notes of the Arabic text are reserved mainly for the variations of the reading, the part entitled «Notes and Commentary» deals with the aforesaid peculiarities. Among other things, it deals also with the ryhme-scheme and the metre of each **Muwashsha.**

Three mannuscripts, or to be exact three micro-films, have been used. In collating the MSS., we have used (؟) as our basis as it is complete and as we think that it is the oldest of the three. This does not mean, however, that we observed the readings offered by this manuscript throughout the book ; the reading of the other two are given when judged superior. When the three MSS. agree on the same reading, though this may be called an «obvious error», we have preserved that reading for the abovementioned reason.

100 — **Jad, A.B.**

The Novel of literary merit in Egypt 1912-1971 ; a literary study with some emphasis on technique. University of Oxford-Brascnose College, 1974.

viii, 627 p.

This thesis is divided into a Preface, an Introduction, Four Chapters, a General Conclusion, a Bibliography and two Appendices.

In the Preface he deals with the scope o fthe thesis, the procedure he follows in writing it and the way he has selected the novels included in it.

In terms of its scope, the thesis is a selective critical survey of the Egyptian novel of literary merit from its emergence in 1912 until as recently as 1971. he describes his understanding of the term «literary merit» and point out that my approach is one of fairly close reading and his method is of one of practical criticism of the novels he includes.

The Introduction relates the emergence of modern fiction in Egypt to the modernization started during the Napoleon campaign in the country, but much furthered by Muhammad Ali and his grandson

99 — **Al-Fadda, Abdul Aziz Abdullah**
The Andalusian lyric poetry «Al-Muwashshahat». University of Cambridge, 1966.
xxix, 549 p.

Our present work aims at an analytical study of the Andalusian **Muwashshah.** It is divided into two parts, the first of which embodies three chapters. The first chapter decals briefly with the terminology of the **Muwashshah** from the Andalusian point of view. The second treats of three topics, the rhyme, the metre, and the language. The **Muwashshah** is known to be a strophic type of poetry. However, it seems that there were some conventions governing its strophic structure and the numerical relationship between the stanzas. The Andalusian **Muwashshah**-writers followed a new licence as an aid to mustering several rhymes in one **Muwashshah.** The metre of this genre of Arabic strophic poetry has been analysed in an attempt to find out the technique followed by the **Muwashshah**-writers in dealing with their metres. As for the language of the **Muwashshah,** it is somehow felt by many that this specimen of poetry adopts a peculiar sort of language, and that the Andalusian **Muwashshah,** in particular, uses a diction different from that of the Eastern **Muwashshah.** It is also assumed that the **Muwashshah** is divided, as regards the language, into two sections - the main body, which is put in classical language, and the last **markaz,** or **Kharja** as it is technically termed, which is moulded in a different kind of language. This assumption is not quite true. The language of the Andalusian **Muwashshah** falls into two general classes, neither of which are classical Arabic. Besides, not only do the diction and the characteristic phraseology distinguish the main body of the **Muwashshah** from classical language, but also some cliches put in certain effects.

Yet a **Muwashshah** is an ode which treats of one theme or another, or different themes. How does an Andalusian **Muwashshah**-writer set about this ? Does he arrange his themes in a specific way? And if at all, how is this accomplished ? Is there any connection between the **Kharja** and the rest of the **Muwashshah** ? Answers to these questions are proposed in chapter three. The thesis includes a critical edition of **Jaysh al-Tawshih,** an anthology of **Muwashshah** poetry compiled by Hisan al-Din ibn al-Khatib.

In establishing the Arabic text we have endeavoured to preserve

The process of editing is presented in two volumes :

Volume I : contains prefaces, and an Introduction which deals with :

1. The author and his age and word on the identity of al Gurani the commentator.

2. A description of the Mss., a discussion of the date of transcription, the method applied in the editing of Mss., and notes on the sources and content.

The English Summary of the **Ra's mal an-nadim.**

The Annotations, the object of which is twofold :

a) to explain the text by identifying the persons and places mentioned in it and giving referrences to checked and detailed sources ; further, to give occasional explanations of difficult and foreign words especially when alternative readings may be involved, and to expand the footnotes to the Arabic Text where further illumination on the merits of various readings or items corrected is needed ;

b) to ascertain the sources of the book and to track down certain materials, e.g. Qur'anic Verses traditions, & Poems to their original sources.

Finally a full bibliography of the primary and secondary sources is given.

Volume II : (in Arabic) contains :

a) Lists of symbols and abbreviations and a table of primary sources.

b) The main body : The Text of **Ra's mal an-nadim**, with the apparatus criticus, and the scholia of al-Gurani relegated to the footnote.

c) The classified indices.

LITERATURE — ARABIC

98 — Badawi, M.S.
Ra's mal an-Nadim of Abul-Abbas Ahmad Ali Baba al Qashani; a critical edition. Manchester University, 1974.
2 vols. (vols 2 in Arabic Lang.).

The present work is a critical edition of Ibn Baba's **Ra's mal an-nadim** (part 1), with Introduction (2), Summary (3) and Annotations (4).

The **Ra's mal an-nadim** is a literary compendium composed in 501 / 1108 by Abu' l-cAbbas Ahmad b. cAli b. Baba of Qashan. The present edition is the first and is based on two manuscripts in Istanbul (Mss. S. and N.) which are assumed to have been transcribed in the early 11th / 16th and 12th / 18th centuries respectively.

It consists of facts and information about diverse aspects of the Arab - Islamic culture and was compiled to edify the reader and to serve as essential background knowledge for the **nadims** or «boon — companions». The present writer has classifield the contents of his work (originally falling under about 120 headings), in seven major chapters.

Chapter One : Containing lists and various items of information of a genealogical and historical nature about certain classes of people from pre-Islamic, and mainly, Islamic times.

Chapter Two : Concerning the pre-Islamic antiquities and traditions.

Chapter Three : Concerning proverbial expressions.

Chapter Four : Concerning famous horses and swords.

Chapter Five : Concerning chess and backgammon.

Chapter Six : Concerning geography and the characteristics of Mecca.

Chapter Seven : Chronicles.

Baghdad, three contain proverbs current in Mosul, one contains proverbs current in Basrah, and the eighth contains proverbs current among the Iraqi nomad population. When a proverb is current in all these areas, it is referred to with the word «Iraq» but if it is current in two areas (e.g. Baghdad and Mosul) then they are specified, after «Iraq», in parentheses.

Professor T. Johnstone's **Eastern Arabian Dialect studies** has been used as a model for the treatment for the arrangement of Chapter Five. In general, however, reliance has not been placed on the few published works on the Najdi dialect, to which only occasional references have been made ; he has preferred to arrive at his conclusions directly from the linguistic material gathered, supplemented by the knowledge of the native speaker .

proverbs in that collection are numbered in sequence). If they are divided according to their subject and numbered, the reference is made to the page and the number. If no numbers at all are given, then the reference is made to the number of the page in which a proverb is mentioned, followed by the Arabic text of the proverb ; except when it is identical with or nearly the page is given.

Non-Najdi proverbs similar in meaning to proverbs in the present collection are divided into four groups :

a) Proverbs which are identical with Najdi proverbs. Such proverbs are referred to as «Ident».[1]

b) Proverbs which differ a little in wording from the corresponding Najdi proverbs. These are referred to as «NS» (nearly the same).

c) Proverbs which have the same meaning but whose wording bears only general similarity to the Najdi proverbs. These are referred to as «Sim. WM» (similar in wording and meaning).

d) Proverbs which express the same meaning as that of the Najdi proverbs but with completely different wording. These are referred to as «SMDW» (the same meaning with different wording).

Most Arabic proverb collections do not specify the exact locality from which their proverbs were collected, and specify only the wider region. More often than not, Egyptian proverbs are attributed to Egypt instead of, for exámple, Cairo, Alexandria, or Aswan. In some collections of Syrian proverbs such as that of Asqar proverbs were attributed simply to as-Sam (i.e., Syria, Lebanon, Jordan, or Palestine)[1]. The same holds true, though to a smaller extent, of collections of Omani, Yemeni, and Kuwaiti proverbs.

The case is different in Iraq, from which eight collections of proverbs were consulted. Three of these contain proverbs current in

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1 However, a minor difference such in a preposition instead of another, or in the pronunciation of a word, is usually overlooked.

1 The term «G. Syria» (Greater Syria) is used hereafter for convenience as an English equivalent for «as-Sam».

iarly Najdi and call for special attention are explained, except for those which can be found in Lexicons.

Towards the end of the work of recording this collection of proverbs, two collections of Najdi proverbs appeared in print : **al-'Amtal al-Ammiyyah fi Najd,** Vol. 1, by Muhammad al-Ubudi (1959) which contains a thousand proverbs with explanations of local words and references to parallels among ancient, post-classical, and contemporary proverbs current in adjacent regions ; and **al-Amtal as-Sa biyyah fi Qalbi Jazirat al-Arab,** 3 vols., by Abd al-Karim al-Juhaiman (1963) which contains, 2,852 proverbs with explanations but with only a few references to similar classical or post-classical **(muwallad)** Arabic proverbs. However, it contains much repetitious matter, and some non-Najdi proverbs as well as phrases which are not proverbially common are included.

A further number of Najdi proverbs have appeared in a series of articles by M. al-Ubudi in **al-Arab** under the title of «al-Amtal al-Ammiyyah fi Najd».[1] In these articles, al-Ubudi follows the same method of treatment of the material as in his above-mentioned book.

Of the proverbs in the present collection, 336 (28 per cent) are also given, although sometimes with some difference in wording, in one or another of the collections of Najdi proverbs referred to above. The remainder (i.e., 864 proverbs) forming seventy two per cent of the whole are recorded for the time in this dissertation.

References have been made in the notes to proverbs which occur in other collections. If a proverb occurs as recorded in the present collection, attention is drawn to this with «Also . . .,» but if it is a different version of a proverb recorded here, even if the difference is slight, it is referred to with «Cf . . .».

When there are Arabic parallels to a Najdi proverb among classical or modern proverbs current in Mecca, Kuwait, Oman, Yemen, Iraq, Syria (including Palestine and Lebanon), and Egypt. reference is made to them by first mentioning the name of the country or town in which the equivalent is current, followed by an abbreviation (usually the name of the compiler of the collection) to indicate the collection, followed by the number of the volume of the book (if there is more than one volume), then by the number of the proverb (if the

A number of verses (34) and half-verses of poetry (5) which are used proverbially, and many metaphorical expressions and idiomatic proverbial phrases are among the items in this collection.

Like many other proverbs, some Najdi proverbs have two or more versions. It was not a chief concern of this dissertation to give an exhaustive account of these variations. However, some variations which seemed worthy of attention because they involved a substantial difference or because they added an otherwise absent flavour to the proverb, have been mentioned.

While some proverbs may only be used in certain fixed situations, other proverbs may be used in a number of different situations. Other proverbs may be applied to a particular circumstance in a certain area, and in another area said of another circumstance. It would scarcely be possible to list such occasions of use of a proverb exhaustively ; in the present investigation he has confined himself to recording the particular context in which each proverb happened to be heard.

Some proverbs in present collection derive from stories which are no longer remembered. Some such proverbial stories are, however, still recalled, although even these are only actively present in the minds of a small minority of their present-day users.

The difficulty of translating these proverbs is very great ; they have arisen against a cultural background very different from that familiar to the European reader, and many are scarcely intelligible even to a non-Najdi Arab. My concern throughout has been to interpret them as clearly as possible, keeping close to the literal meaning as long as it makes sense in English. In some cases, however, exigencies of the idiom made less literal renderings necessary.

In many cases (some 140, i.e., about eleven per cent), equivalent English proverbs have been given. This has been done where the similarity is very close and the English proverb helps to clarify the meaning of the Najdi proverb. Most of these English proverbs have been taken from standard proverb collections, and are not all necessarily current at the present day.

Following the translation of a proverb, words which are pecul-

ely 1,100 proverbs, to which it was subsequently possible to add a a further hundred items.

The intention in recording these proverbs was to try to save an important aspect of the folk wisdom of Najd (central Arabia) from oblivion; it was only later that it became clear to the writer that this fairly extensive material might form the basis of a piece of literary research.

These proverbs have been taken from informants at all levels of Najdi society ; with perhaps some bias towards the farming community which is more tenacious of traditional forms of speech. Many of the proverbs, however, stem from the more characteristically urban environment of informants who were carpenters, blacksmiths, shoemakers, butchers and other craftsmen, as well as shopkeepers, officials and others. In addition, it has been possible to record some proverbs stemming from the purely nomadic environment which are not to be found among farmers or townsmen.

A large proportion of these proverbs were collected in the Qasim area (more precisely in al-Bukayriyyah, 40 km north-west of Buraidah) or heard from people who grew up there, but a substantial number were recorded in other parts of Naid Naturally a number of proverbs which are exclusively Qasimi are included. This, however, applies only to a limited number ; the majority are familiar all over Najd.

Some of the proverbs which were recorded as they are used in al-Qasim may be used with some differences of phraseology elsewhere in Najd (especially where the use of personal suffixes is involved-in proverb no. 1076, **nafsuh nafs teer**, for instance, the word **nafsuh** becomes **nafseh** in southern Najd).

In making this collection, proverbs which were obvious borrowings from classical or modern literary Arabic, or which had the hallmarks of having been borrowed from a region outside Najd were usually excluded.

A small number of proverbs of an obscene nature have been excluded from the collection ; but several widely current proverbs which are somewhat indecent yet express witty or pithy meanings which compensate for their objectionabe wording have been included.

herangezogen, ebenso einige neuere mundartliche Sammlungen ((c Abbud/Thilo, Burckhardt, Feghali, hanafi, Landberg, Littmann, Socin, Tikriti, Yahuda). Ferner wurden von mir bekannte Sammlungen deutscher Sprichwörter verwendet, um eventuelle Entsprechungen festzustellen (s. Literaturverzeicfnis). Der 2. Teil enthalty seechs von meiner Mutter auf Tonband gesprochene Beschreibungen volkstümlicher Bräuche aus Mekka, in denen auch mehrere Volksieder vorkommen, wie sie vom Volk bei gegebenen Anlässen mit musikalischer Begeitung gesungen werden. Das VersmaB der einzelnen Lieder, die zum Teil in klassischer Metrik abgefaBt sind, wurde von mir festgestellt. In einigen Fällen bandelt es sich um akzentuierende Metrik. SchieBlich sind dem Textteil noch 14 Kochrezepte typisch mekkanischer Gerichte beigegeben, die gleichfalls von meiner Mutter **auf** Tonband gesprochen wurden.

Das beigegebene Glossar enthält alle Wörter und Bedeutungen der Texte, die im Hocharabischen nicht vorhanden sind. Als grundlage für die Auswahl diente das wehr'sche worter buch. Wörter, die in Schreiber's Gossar bereits vorkommen, sind im allgemeinen nicht wiederholt worden.

Die Lautwiedergabe erfolgte nach dem phonologischen System, das auch G. Schreiber angewendet hatte, unter Benutzung des für die Transkription der Schriftsprache geschaffenen Zeichensystems der DMG. In den Volksliedern treten kleine lautliche Abweichungen in Bezug auf Kürzen und Längen auf, die für das Metrum der zum Teil hocharabisch gefärbten Sprache erforderlich sind oder die gesungene Form der Dieder wiedergeben.

Zu groBem Dank verflichtet bin ich meinem verehrten Lehrer, Herrn Prof. Dr. Hans Wehr, der mir die Anregung zu dieser Arbeit gab und mir bei der Bewältigung des Materials sehr behilflich war.

97 — Al-Sudais, Muhammad Al-Sulaiman
A Critical and comparative study of modern Najdi Arabic Proverbs, Leeds University, 1976.
xxi, 534 p.

The material which forms the basis of this dissertation was collected and recorded over an extended period lasting in all for ten years (1958-1968). This work resulted in a collection of approximat-

Previous dialect studies

Until recently the study of the dialects of the Arabian Peninsula has been neglected. Several factors have, perhaps contributed to this, the most important being the inaccessibility of Arabia and its laçk of communications.

Apparently the first scholar to interest himself in the Arabian dialects was Wallin. As long ago as 1848 he made some accurate observations of the affrication of the consonants k, g.

96 — Al Sasi, Omar.
Sprichworter und andere volkskundliche texte aus Mekka.
Universitat Zu Munster, 1971.
viii, 156 p.

Vom November 1967 bis zum Frühjahr 1970 unterstützte ich als gebürtiger Mekkaner meinen Studienkollegen, Herrn Dr. Giselher Schreiber, bei der Abfassung seiner Dissertation «Der arabische Dialekt von Mekka, AbriB der Grammatik mit Texten und Glossar» (Münster 1970). Nach AbschluB dieser Arbeit, bei der ich als Informant und Textsammler mitgewirkt hatte, empfahl mir mein verehrter Lehrer, Herr Prof. Dr. Hans Wehr, weiteres authentisches Textmaterial in meiner Muttersprache zu sammeln und zu erklären. Bis auf die Sammlung von 74 mekkanischen Sprichwörtern, die C. Snouck Hurgronje 1886 publiziert batte und die von G. Schreiber seiner Arbeit beigefügten Geschichten, existierten bisher keine Texte in der mekkanischen Umgangssprache ; gerade der Dialekt des Zentrums der arabisch - islamischen Welt konnte aus naheliegenden Gründen von westlichen Arabisten überhaupt nicht an Ort und Stelle näher untersucht werden und gehört zu den am wenigsten bakannten städtischen Umgangssprachen der arabischen Welt.

Ich veranlaBte daraufbin meine Verwanten und Bekannten in Mekka, insbseondere meine Mutter Gawahir, Gattan mir bei der Sammlung möglichst vieler Sprichwörter, die heute in meiner Heimaststadt gebraucht werden, behilflich zu sein. So kam durch ihre meine Bemühungen eine Sammlung von 618 Sprichwörtern zusammen. Zu den primären Quellen ghören auch verschiedene Schriften des mekkanischen Schriftstellers Ahmad SibacI, aus denen ich mehrere Sprichwörter entnehmen konnte. Als sekundäre Quelen wurden die bekanntesten Klassisch - arabischen Sprichwortsammlungen zum Vergleich

formants, and their replacement by 00, ee. These elements, however, are not very obtrusive dialectal variations, and do not in fact diverge strikingly from their counterparts in Classical Arabic. others are :

The elesion of terminal vowels in the 3rd person masculine singular imparative of verbs with final (ya), as ?istar «buy».

The fusion of the imperfect verb forms of verbs with final (y, w) with each other.

All the nominal patterns, and the influence of certain consonants in attracting certain prosthetic vowels have been discussed.

The broken plural and its various patterns are listed. Similarly the numeration has been discussed at length, where we have given the different form of the cardinal numbers, and the occurrence of the older classical system which enumerates the masculine nouns by numeral forms of the opposite gender, and vice versa, besides the appearance of the new system which makes no such differentiation

The demonstrative, personal, and relative pronouns, particles and prepositions are also treated.

(iv) **Lexical features** : Here a list of certain words and phrases found in the Harb dialect is given.

Additionally we show the regional differences between the Hijaz, and the NC group. Besides these we discuss the foreign words encountered in this dialect.

(v) **Syntax** : This chapter deals briefly with the forms of verbs and moods appearing in this dialect. Moreover, we discuss the main modifications which have taken place, and the use of certain verbs as auxiliaries to express different moods. Finally we show the way of expressing the indefinite noun and the various types of sentences and clauses.

(vi) **Comparison and conclusiòn** : in this chapter a comparison of our dialect with the neighbouring dialects from the aspect of phonology, morphology, and lexical items is offered; in the light of this comparison we draw our conclusion, and determine the position of this dialect among the dialects in the vicinity and its relationship to them.

some irregular verbs and their treatment in the light of the previous discussion.

95 — **Il-Hazmy, Alayan Mohammed**
A Critical & comparative study of the spoken dialect of the Harb Tribe in Saudi Arabia. Leeds University, 1975.
xvii, 254 p. maps.

(i) **Introductiou** : in this chapter we give a brief account of the previous dialect study of the North Arabian area adjoining ours, followed by a plan, description of how we collected our present data, and description of the area. We proceed thereafter to give a sketch history of the Harb tribe and some feature of their ancient dialect.

This chapter, also, contains introductory remarks discussing the main general features of the Harb dialect as a whole, and the distinguishing elements which divide the Hijazi group from the Northern Central group of the Harb within this overall grouping. Similarly a brief summary of the influence of the Koine language on the traditional dialect is included.

(ii) **The phonology** : This chapter deals with the phonology of this dialect as a whole, without distinguishing the two groups (the Hijazi, and the Northern Central of the Harb) from each other in separate discussions.

This is due to the fact that the phonology is not markedly different among the two groups of the Harb ; and we do not need to repeat items by discussing them individually.

However, during our descriptiou we shall refer to any differences among the two groups whenever they present themselves.

(iii) **The morphology** : in this in addition to the obvious basic description of the nouns, verb etc, several other points have been discussed, such as : The effect of the guttural sounds on the sylable structure, the non-appearance of the trisyllabic form in both nominal and verbal patterns and the common occurrence of the from ficil, fical in the perfect verb.

New elements in the phonology have also developed, such as the occasional disappearance of the diphthongs aw, ay among some in-

Finally, the perceptual and instrumental observations upon which the analysis was based were supported by some spectrographic evidence. Because of the poor quality of the original recordings from which the spectrographic tracings were made, this evidence was given in a separate appendix.

94 — Bakalla, Mohammad Hasan
The Morphology and phonology of Meccan Arabic. University of London, 1973.
xxix, 683 p.

The aim of the thesis is to study some aspects of the surface structure of the contemporary Arabic spoken in Mecca, Saudi Arabia. It is concerned mainly with the morphology (sound pattern) of the verb. It proposes a rule-system for the derivation of actual phonetic forms from abstract, underlying forms. Broadly speaking, the mode of analysis employed here is that of Generative Phonology as developed by Chomsky, Halle, and others, some of whom are cited in the Bibliography.

The thesis consists of two main parts. One part treats the rules of the morphological component ; the other treats those of the phonological component. It is assumed that the former part constitutes the input to the latter. As for the morphological component, it contains at least three main sets of rules : those which produce mainly the consonantal bases, the Derivational rules (Chapter XI) ; those which develop such bases into fully-fledged verb forms, the Inflectional rules (Chapter XII) ; and those which state the redundant features of the segments before they enter the phonological component, the Redundancy rules (Chapter X).

The phonological component consists of the rules that convert the output of the above component into final, surface forms. Chapter I suggests the possibility that the traditional Paradigm can be incorporated in the phonological component of the language to canture some introduces the notion of Prominence into the phonological component, and Chapters III—V treat the various types of stems (Strong, Weak, etc.) and give the rules that can handle the Subjective Verb. Chapters IV and VII analysis the Objective Verb and the Dative Verb, respectively, Chapter VIII investigates the system of Distinctive Features that are required in the present analysis. Chapter IX discusses

PROVERBS

93 — **Badawi, El Said Mohammad Mohammad.**
An International study of Colloquial
Riyadhi Arabic. University of London, 1965.
295 p. illus., 26 cm.

The thesis treats of pitch features of Riyadhi Colloquial Arabic in terms of thirteen tones, ten «**finals**» and three «**medials**», an exponent of any of these being termed a «tone group».

The distinction between final and medial here was based upon the fact that members of the former may occur both signly and in combination, whereas members of the medial type do not occur singly.

Differentiation between one final tone and another was based upon contrastive pitch features coupled with parallel situational ones. Grammatically simialr utterances were found to stand in functional contrast to each other on account of their being associated with contrastive tonosituational features.

Although the function was assigned to the tone group, or combination of tone groups, as a single indivisible unit, it was realized that no thorough comparison, or indeed a clear one, could be made between the various tones unless their multiplicity of patterns were first to be reduced to elements of tonal structure common to each and every one of them. These were established as : **pretonic and tonic,** the latter subsequently subdivided into **tonic syllable** and **tonic extension.**

Because tone groups occurred singly and in combination and because the latter consisted of varying numbers and various types of components, it was necessary to establish a higher unit of structure, **the contour.** And in order to account for the very apparent characteristics of spontaneous speech (viz. hesitation, interruption, repetition etc.) the contour was subdivided into «complete», «incomplete» and «interrupted». The function of the complete contours was then studied in association with «single tone groups» and «combination of tone groups».



LANGUAGE



way reached ; there was no teacher training ; and students were not sent abroad to gain a broader approach. In fact, the Sharif's misgivings a fear of a possible revolution stemming from progress, — throttled further educational development during the later years of his regime. He had, nevertheless, proved to all that educationally, as well as in other fields, something positive could be done in the Hijaz ; and this was further demonstrated after the end of his reign when Saudi Arabian efforts were soon to outstrip his early achievements.

Education in the Hijaz, as in other parts of Saudi Arabia, was in fact to make considerable progress in years to come, especially after the discovery of oil, which provided the financial means which had previously been lacking.

tality tended to be stubbornly conservative and resentful of attempted western innovations (in education as in other fields). Urged on by the British and other foreign consuls, the Turks after 1869 attempted to introduce some educational reforms, but with little success. The few schools founded in the Hijaz limited as they were in any case in their intake very largely to the children of the Turkish official class, failed to gain any wide support from the local population, but at the same time brought the latter face to face with the inescapable question of a more general education and modernism in teaching ; hence an important indirect effect of the Turkish system, which had in itself signally failed (primarily on account of the use of Turkish as the vehicle of instruction) to achieve any notable results among the Hijazi's, was the opening of the private schools. These latter introduced an educational pattern limited in scope to be sure, but more suited to the aspirations of the local folk, who now became interested in sending their sons to such new establishments. Nevertheless, such educational progress as was made by the State or by private schools in the Hijaz was on a very small scale, and restricted to the few main towns; girls were not deemed suitable for inclusion in either system, which inevitably left a majority of the population outside its scope. In all this, the Hijaz contrasted most unfavourably with Egypt or Syria at the time.

A new age seemed at last to have dawned with the establishment of the Sharifian Regime in 1916, belieing Ali Bay's belief that educational progress in this part of Arabia was forever made impossible by permanent geographical factors. The Sharifian plans were ambitious : the number of schools was at once increased, new types of Special Schools were set up, the syllabuses were widened and modernized, and many more children of course received education under a system now based on the use of Arabic as the medium of instruction. A Ministry was set up to administer education, and foreign qualified teachers were imported in significant numbers. In all this, the changes were clearly epoch-making. From the beginning however there were also significant deficiencies. The system still totally excluded girls ; a large part of the population outside the towns was not in any

EDUCATION - HISTORY

92 — **Dohaish, Abdullatif Abdullah**
A Critical & comparative study of the history of education in the Hijaz during the periods of Ottoman and Sharifian rule between 1869 - 1952.Leeds University, 1974.
xvii, 317 p.

With the rise of Islam a characteristic type of Islamic education arose in the Hijaz as an integral part of the new Islamic Society in Arabia. The familiar features and techniques of study which were to distinguish Muslim education permanently thereafter also took their rise here at the time. However, with the spread of Islam into the more fertile neighbouring countries, the Hijaz progressively failed to maintain its position as the educational centre of the Muslim world; Mecca and Medina remained indeed the centres of the Faith, but as centres of scholarship, while at times distinguished, they were never in the front rank.

Later, with the general decline of Arabia during the Ottoman period, the standards of education in the Hijaz declined perceptibly, and by 1800 they had reached a lamentably low level. Nor did Egyptian rule during the first half of the nineteenth century bring any real progress to the Hijaz (unlike what occurred in Syria). In fact an intelligent outside observer, Ali Bey, seriously thought at that time that natural and sociological conditions in the Hijaz would never allow any tangible educational advances there. (1)

The nineteenth century thus opened with a negative balance. However, improvements in communications diminished the country's isolation after the opening of the Suez Canal in 1869, and increasingly with the opening of the Hijaz Railway in 1908. Even so, the country remained depressed economically and stagnant intellectually, its outside contacts were with the East rather than the West, and its men-

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(1) Ali, Bey, **Voyages d'Ali Bey el-Abbasi en Afrique et en Asie,** vol. II, Paris, 1814, p. 391—2.

4. Similar to the practice followed France faculty members and administrative personnel are regarded as civil servants, subject to most of the provisions of the civil service code with regard to their appointments, promotions, dismissals, leaves of absence, and retirement. In composition the teaching staff resembles the British pattern. There are five ranks : professor with chair, professor, assistant professor, lecturer, and assistant lecturer. The function assigned to each rank, however, is similar to that in French practice. Professors with chairs have complete authority over the academic work in their respective chairs or departments. The remaining faculty members are relegated to an assisting position.

5. In terms of student admission, examination, guidance, and counseling, French practices furnish the guiding principles. As in France, the high school certificate is the sole criterion for admission, and little attention is paid to student counseling and guidance.

Major issues and problems

Missions : Riyadh University, both in its declared statements and according to the faculty responses to the questionnaire, regards its mission as that of (1) the preparation of specialized manpower and (2) research.

According to the majority of respondents, Riyadh University.

The following points comprise a summary of the major findings of this study.

Historical influences

Riyadh University, in its administration, organization, curriculum, methods of teaching, and faculty and student personnel processes and policies, has been thoroughly rooted in the Egyptian university tradition. Because, on its part, the Egyptian university had developed principally as a result of the assimilation of early twentieth century French and British university models, Riyadh University naturally reflects these same influences.

1. In its administration and organization Riyadh University follows the French - inspired Egyptian practices. The state, by formal by-laws and through several other devices, reserves to itself the ultimate right to control the university's affairs. Internally the university is administered by a University Supreme Council, a University Council, and a rector responsible to the minister of education, who is the supreme head of the university and chairman of the University Supreme Council. Members of the councils include the deans of various faculties and some senior faculty members legally professors with chairs. Each faculty, however, has its own council and in reality is independent in terms of its internal administration, teaching staff, curriculum, and buildings and grounds.

2. Owing to the different sources of influence originally affecting the Egyptian university and, consequently, Riyadh University, no single curriculum style prevails among the different faculties. Thus, the colleges of letters and pharmacy both follow the French pattern ; the colleges of science, commerce, engineering, and possibly medicine follow the British pattern ; and the colleges of education and agriculture follow a mixture of both.

3. Methods of teaching are most affected by the French influence. Instruction is given in the form of lectures delivered over the period of an academic year and followed by an annual examination held at the end of the academic year. Should a student fail in a given subject he may sit for the second examination held at the beginning of the following academic year. Should he again fail he must repeat the entire year's work.

to its mission, administration, organization, curriculum, facilities, faculty personnel, and student personnel ?

2. What are the historical foundations underlying the existing status of Riyadh University in its mission, administration, organization, curriculum, facilities, faculty personnel, and student personnel ?

3. What are the most pressing problems facing Riyadh University in its mission, administration, organization, curriculum, facilities, faculty personnel, and student personnel ?
4. What procedural steps may be proposed to solve the problems facing Riyadh University ?

Methodology

This study utilized both the historical and the survey methods. For tracing the historical origin of Riyadh University, both primary and secondary sources were utilized. These were available in the administration offices of Riyadh University, the library of Cairo University in Egypt, and in American university libraries.

For the analysis of the current status of Riyadh University and the identification of its most pressing problems, documentation, interviews, and questionnaires were used.

Since this investigation was conducted in Saudi Arabia, the questionnaire and the interviews were administered in Arabic and later translated into English. Also, most of the sources on which the study was based were written in Arabic and, therefore, had to be translated.

Summary of the Findings

Riyadh University opened in 1957 with a Faculty of Letters and an enrollment of fewer than twenty-five student. Over the last fifteen years this institution has expanded its program to include faculties of science, commerce, pharmacy, agriculture, engineering, education, and medicine. Enrollment has risen steadily, reaching a figure of 3438 students in 1970 - 71. Further expansion is being purposed both in terms of programs and student enrollment.

agem and ultimate results desired by members both of the government and the institution.

The problems faced in the realm of higher education in the Arab world and in the Kingdom of Saudi Arabia have been discussed. The direct actions and contributions of each facet of the College of Petroleum and Minerals have been mentioned in relation to the composite mission of the institution. The Summary, Conclusion and Recommendations evaluated the importance, success, and problem areas of the institution in terms of the major assignment of the College in the world community of higher education.

91 — **Jammaz, Saud Ibrahim**
Riyadh University : historical foundations, current status, critical problems, and suggested solutions. University of Southern California, 1973.
vii, 197 p.

Saudi Arabia, like many developing countries, has put great faith in education. In addition to over 1600 elementary and secondary schools, five institutions of higher education have been established over the past sixteen years. This extremely rapid initiation and development of an educational system has compounded the problems which are to be found in every segment of that system. One central problem, however, is that the whole system has been a borrowed instrument. An equally important problem is that little research has been undertaken in order to assess the workability and effectiveness of this borrowed instrument. This study has dealt with one segment of Saudi Arabia's educational system, namely, Riyadh University.

The problem

It was the purpose of this study to analyze the existing Riyadh University system in order to reveal its underlying historical foundation and identify its most pressing problems. The study also sought to develop guidelines which might be employed by university authorities for effective self-examination and reform.

Specifically, the purpose of the study was to answer the following questions :

1. What is the present status of Riyadh University with regard

90 — **Dawsari, Fahad Saqr Al-Hazzam**
Descriptive study of the development of the college of petroleum and minerals Dhahran Saudi Arabia. Arizona State University, 1975.
xii, 360 p. maps.

The primary objective behind the research concerning the College of Petroleum and Minerals was to illustrate the methods in which the institution serves the national goals of Kingdom of Saudi Arabia.

The College was the established in 1963/4 in order to close a gap in the educational structure of not only the Kingdom but the Arab world in general. In addition, the concern expressed by the government of Saudi Arabia in the study and utilization of the world's energy resources was a major contributing factor to the inception of this sort of an institution.

The planning and methodolgy of its execution which made the College of Petroleum and Minerals a reality, provided a benchmark and precedent in educational development in the Arab world in general.

The College of Petroleum and Minerals was established by Royal Decree No. 397 in 1963. From that date forward, the governing body has pursued the mission and responsibilities of the institution in the capacities outlined by His Majesty, King Faisal. The objectives of the mission have been to construct and make operable an institution of higher education which achieved not only specific instructional goals, but also directions in national development.

The governing board, the faculty, the staff, and the students all were channeled by an effective set of guidelines. Each one of their functions and responsibilities has been carefully outlined and defined. Every position in the Administration, the instructional faculty and the supporting staff has been described in relation to the roles played in the achievement of the institutional goals.

The tasks assigned to each position and the panning for the future of every program has been discussed. The planning feature has remained perhaps the most exciting and stimulating aspect of the institution. Every facet has been evaluated in terms of the overall strat-

1. The sample : The sample consisted of 320 freshman students failing in more than two subjects and achieving a total score below the «pass» level and of 220 successful freshman students achieving a total score above the pass level. The two groups represented 82 per cent of the failures and 86 per cent of the high achievers among all freshman students enrolled for the first time at Riyadh University in 1972-1973.

2. Methods : A questionnaire encompassing 49 factors hypothesized to contribute to freshman students' failure was distributed to 320 freshman students who were, as measured by the university annual examination, failing in more than two subjects and achieving a total score average below the «pass» level, and 220 freshman students who were, as measured by the same annual examination, achieving a total score above the «pass» level. The two groups represented 82 per cent of the failures and 86 per cent of the high achievers enrolled for the first time in the freshman year of 1972-1973.

Other Data :

The high school total score average of the students who participated in answering the questionnaire was obtained from their records.

Conclusions :

The results of this study show that the failing freshman students differ from the high achieving freshman students. As compared to the high achievers, the failures are likely to (1) be non-married, (2) have farmer fathers or illiterate fathers, (3) have attended high school in small communities, (4) live with non-university friends, (5) be less dissatisfied with their college education, (6) be unhappy with their academic majors, and be more willing to change them, (7) be less adjusted to the university atmosphere, (8) be less dependent upon instructors for academic advice, (9) miss more classes, (10) have experienced failure in their secondary school years, (11) take their study seriously only late in the academic year, and (12) achieve low on the senior high school public examination.

it was found that there were no overall differences between the two universities as a result of the public relations activities. However, there were major differences between the groups of the people in the sample in regard to their opinion toward their universities. The data showed significant interaction between the two universities and groups of people in two of the three sub-scales : awareness and satisfaction. The data also revealed an interaction between the two universities and the groups of people in the sub-scale, participation. As supplementary data, a ten-item questionnaire was sent to five reporters in each city in where the two universities are located. This was intended to determine their opinion in regard to the universities' cooperation with the press and their willingness to cooperate with the universities.

Although the data did not contribute to the rejection of all the null hypotheses, it can be concluded that the university public (faculty members, students, and others) and the general public in the surrounding area of the institution which had a public relations program indicated a more favorable attitude towards the university than those in the other university without such a program.

89 — **Al-Bassam, Ibtissam Abdulrahman**
A study of selected factors contributing to students' failure at the freshman level at Riyadh University. Michigan University, 1973.
vi, 121 p.

The Setting :

This study was conducted at Riyadh University, the largest institution of higher education in Saudi Arabia.

The Purpose of the Study :

The purpose of this study was to determine whether a relationship existed between certain scholastic and non-scholastic factors and academic achievement at the freshman level at Riyadh University.

Procedures :

The following procedures were utilized in the preparation conduct and analysis of this study.

twenty laymen has been chosen from each university to make up for 120 from both. The same instructors in each university were required to answer the same instrument twice : the first to measure their actual attitude toward their universities at the time of this study, and the second to answer after reading a folder of accumulated newspaper clippings on their own universities in the period preceding the establishment of the public relations department at the University of King Abdulaziz. This was intended to see whether the difference (if any) between the two universities was a product of factors other than the public relations activities. The total sample after including the instructors reading the clippings amounted to 172 subjects in the two universities.

Four null hypotheses were formulated to be tested by analysis of variance, one for each of the three subscales in the measure. These hypotheses were :

Hypothesis I :

There will be no overall difference between the two universities.

Hypothesis II :

There will be no difference between the groups of people in the two universities.

Hypothesis III :

There will be no interaction between the two universities and subscales.

Hypothesis IV :

There will be no interaction between the two universities with groups of people and sub-scales.

The .05 level of statistical significance was established as the minimum for accepting mean differences as significant.

Results

The statistical analysis has led to the rejection of two hypotheses, II and IV, and the failure to reject the other two, I and III. Thus,

88 — **Badr, Hamoud Abdulazib.**
Public relations activities at two Saudi Arabian Universities.
Michegan State University Department of Administration and Higher Education, 1972.
206 p. tbls., digrams.

The purpose of this study was to determine the importance of public relations activities to colleges and universities, especially in developing countries. It was hypothesized that the attitude of the university public ; students, instructors, and the citizens around it, would be more favourable toward a university having programmed public relations activities than another university not having public relations department.

Two major Saudi Arabian universities were chosen for the study. They are, the University of Riyad which did not have an organized public relations department and the University of King Abdulaziz which did have an organized public relations department at the time of the study.

A questionnaire was developed by the investigator with the assistance of the Office of Research Consultation and was administered in the two universities. This questionnaire was intended to determine the subjects' opinions in regard to :

1. Their awareness of the universities' objectives, operations, and accomplishments (awareness).

2. The degree of their participation in the universities' extra activities and their willingness to contribute to the universit's needs (participation).

3. Their satisfaction with the universities' efforts in the area of information and public relations (satisfaction).

A random sample of twenty students, twenty instructors, and

With regard to manpower requirements, existing vocational schools will not be able to meet the projections even for the public sector alone.

The problem of internal migration was evident. 87.1 percent of the vocational graduates who originally came from towns and villages were found working in cities.

Conclusions

Taking the first priority aim of vocational education as the training of needed manpower in the most efficient way, the findings lead to the conclusion that vocational education in Saudi Arabia had only meager success.

The effect of social attitude toward vocational work was ruled out as the major factor in deterring vocational graduates from assuming vocational responsibilities. Other cultural and social factors as measured by the geographical region of the graduates and the occupation and education of father or guardian were also ruled out.

Achievement of manpower requirements is beyond the capacity of existing vocational schools.

Recommendations

This study pointed out the need for more research on manpower projections and for a qualitative approach to them. There is also a need for an apparatus for coordinating all governmental vocational programs in relation to vocational education and the country at large-vocational training centers. The coordination should include planning, implementing and placement of the graduates. The private sector should carry its share in training its own personnel and in employing native vocational trainees.

Data were gathered in relation to the following criteria : (1) placement of vocational graduates ; (2) attitude toward vocational work ; (3) meeting the national manpower requirements : and (4) the problem of internal migration.

Procedure

The graduates of vocational schools for the school years of 1386/87 A.H. through 1391/92 A.H. were the population of this study. A stratified random sample of 331 individuals was drawn up. Attempts of collecting addresses resulted in securing only 285 of them.

A questionnaire was distributed to those 285 individuals by direct contact and by mail. The return was 237 questionnaires representing 72 percent of the original sample. The Chi-Square technique was used to analyse the data.

Observations on the job and information regarding national manpower were utilized to supplement the questionnaire.

Findings

The majority of the graduates (55.9 percent) reported having jobs related to their training. In response to the question of which part of their training they use most, 34.7 percent gave such ranking to the specific vocational skills and knowledge. Thus the degree of relationship between jobs and training was not very strong.

These results were consistent over the years sampled, graduates' geographical region, occupation and education of father or guardian, time spent on the job, employing agency, and type of school.

It was found that as salary increases, the majority of the graduates tended to have training related jobs. The trend did not continue when salary reached 1000+ Saudi Riyal.

The negative social attitude as described in the literature was not evident from this investigation. The majority of the graduates (97 percent) were government employees. They attributed their work for the government to the security and permanency of employment these jobs offer.

of credit, age up to a certain point and education in general. Desire to continue farming was correlated with investment, farm size, family size, net farm income and age up to a certain point.

The findings of this study suggested the following recommendations :

1. Educational programs for small farmers should be problem-solving oriented and should focus on their urgent tangible problems as well as being well timed.

2. Farmers need an integrated approach that takes into account all limiting factors of production.

3. Financial credit should be made available to all farmers irrespective of what tenure system they have.

4. An educational program for older farmers is needed to help them develop a new attitude of «do it for the rest of the society if not for yourself.»

Agriculture involves many factors which are difficult to control. Consequently predicting and measuring outcomes of educational programs and practices are equally difficult, especially for small farmers.

87 — **Al-Jallal, Abdulaziz A.**
Evaluation of the vocational schools in Saudi Arabia in social and economical context. Colorado University, 1973.
152 p.

The present investigation was designed to evaluate vocational education in relation to the social and economical conditions of Saudi Arabia. Specifically it sought to answer the following questions :

1. To what extent has vocational education been successful in meeting its objective of contributing to the social and economical development of Saudi Arabia as measured by the proportion of vocational graduates making proper use of their vocational training ?

2. What are the social, economical, or cultural factors associated with the success or failure of this program in Saudi Arabia ?

86 — **Ali, Abdien Mohammed**
The Relationship of education and other variables to net farm income, non-land farm investment and desire to continue farming of small farmers in Wisconsin and North Carolina.
University of Wisconsin, 1976.
vii, 176 p.

This study attempted to examine the relationships between certain demographic, social and resource variables and net farm income, farm investment and desire to continue farming in Wisconsin and North Carolina. The study also attempted to measure variations in the above three dependent variables. Discovery of such relationships and building explanatory models about variations should aid in formulating a functional educational programs and in selecting appropriate agricultural technology for small farmers. The specific objectives of the study were to : 1. Describe relevant demographic, social and economic characteristics of Wisconsin and North Carolina small farmers ; 2. Determine the relationship between the relevant characteristics (independent variables) and net farm income, farm investment and the desire to continue farming ; 3. Explain and predict the variations in net farm income, farm investment and the desire to continue farming.

Data for this research were obtained from the «Economic Adjustment Surveys» in Wisconsin and North Carolina. The surveys were conducted by the Survey Research Laboratory, University of Wisconsin—Extension and the Triangle Research Institute in North Carolina in 1968. A total of 236 farmers in Wisconsin and 129 farmers in North Carolina constituted the population studied.

Correlation analysis and the multiple regression analysis were used to test the hypotheses and build the explanatory models.

There was a significant relationship between net farm income, farm investment and the desire to continue farming with selected demographic, social and economic variables.

Net farm income was significantly associated with investment. farm size, education in general, family size, age of head up to a certain point. Investment was associated with farm size, family size, use

education. In fact, most of the teachers and administrators of the existing system are termed unqualified personnel by the leaders of this system. The Higher Technical Institute and the Higher Industrial Institute were proposed to provide the qualified theoretical and practical teachers which this system needs. However, these institutes are still in the planning stages and their products are expected only shortly before the end of the present decade.

One of the other educational problems that hamper the advancement of industrial—vocational education in the country is that the school buildings currently in use are not suited to the type of education being offered in them.

The dependence on foreign textbooks and references represents another educational problem that remains unsolved by educational leaders. While lectures and shop instructions are given in the Arabic language, textbooks and study references are written in foreign languages that cause fear and frustration among students.

Most graduates of the industrial-vocational schools of the Kingdom join the public sector, leaving the private sector to depend almost entirely on imported labor. (Analysis of techniques in the private sector shows that only a few the graduating students join private industry, while most of them join the public sector in search of security and prestige.)

Analysis of the number of technicians required for the country during the Development Plan for 1970—75 shows that industrial schools provided only .03 per cent of the estimated number of technicians needed by the private sector.

Further analysis of the estimated number of technicians required during the period from 1975—1980 shows that Saudi Arabia will experience a shortage of 3,640 technicians who must either be supplied by industrial—vocational schools or be hired as imported labor.

The study concludes with recommendations the author believes would improve the present status of industrial—vocational education in Saudi Arabia.

EDUCATION - INDUSTRIAL & VOCATIONAL

85 — **Al-Aki, Madani Abdulkader**
Industrial vocational education in Saudi Arabia ; problems & prospects. Arizona University, 1972.

The purpose of this study is to reveal the major problems of industrial-vocational education in Saudi Arabia, and the contributions this educational system makes to the labor market of the country, especially its contributions of technicians and skilled workers. Industrial-vocational education represents only one of several government manpower development programs. This educational system passed through a series of several changes for the purpose of upgrading its quality and increasing its enrollment. Though certain developments such as the «open system» of industrial-vocational education seem a proper solution to the problem of the unattractiveness of industrial-vocational education other problems still remain to be solved in this system. Perhaps the most critical problems that exist are those related to the size of enrollment, the quality of personnel, and the slow response of the system in meeting the needs of the private sector.

Low enrollments are attributed, however, to educational and social problems. Saudi young people prefer academic education over vocational education. Academic education appears the natural choice for those students who desire to pursue their educational ambitions to the highest levels. For academic education assures good government positions for graduates seeking the security and status of government jobs.

Socially, vocational education suggests the concepts of dirty hands and long hours of work, besides the insecurity of such jobs. Social values and the culture of the society assigns vocational education a low status and to the students, industrial-vocational education implies less prestigious jobs.

The quality of teachers and administrators represents another challenge to the advancement and progress of industrial-vocational

2. The personal data sheets indicated that 23 of the respondents were principals and 553 were teachers. Only 80 teachers were Saudi, while the rest were non-Saudi.

3. The principals and teachers believed that all goals were important.

4. The final ranking of each goal according to its importance appeared to be as follows :

    1. Self - Realization
    2. Religious Education
    3. Career Education
    4. Creative and Constructive Thinking
    5. Social Responsibility and Human Relations
    6. Lifelong Education
    7. Basic Skills
    8. Health
    9. Natural Physical Environment
    10. Moral Education

Recommendations

Based on the findings of the study many recommendations were made to include several programs, individuals, institutions and further research.

EDUCATION - SECONDARY

84 — **Abo Ali, Said Atiah**
A Study of educational goals for secondary education as determined by principals and teachers of selected districts in Saudi Arabia. University of Northern Colorado, 1975.
xiii, 158 p. tab.

The Problem Stated

The problem which this study addresses itself is to know how the principals and teachers of secondary schools in Saudi Arabia determine the educational goals for secondary education. This study is a step toward building a cohesive educational philosophy for Saudi Arabia.

Methodology

According to the geographical divisions of the country, the study was based on a random sampling of the biggest district, regarding secondary schools, in the region. According to the 1973-74 statistical data of the Ministry of Education, the districts covered in the study were the Eastern, Riyadh, Jeddah, Al Jouf and Abha. All principals and teachers of secondary schools in these districts were to participate in the study.

A questionnaire that included ten general goals believed to suit the Saudi society was developed by the author. Each goal included several detailed items and each item was to be valued separately from others. The author took the mean of all items of each goal to give the final value of the general goal. In its final form, the questionnaire was translated into Arabic.

The study was administered in the aforementioned districts during the period of January-March, 1975.

Findings

1. The questionnaire forms that were returned represented 76%. Eleven forms were unusable and therefore ignored.

10. People with administrative background experience evaluated output goals higher than did the groups with other types of experience.

11. Relating to job expectation after graduation, the secondary level teachers and administrative in Ministry of Education groups evaluated goals in similar manner. Fewer similarities were displayed between people of expectations of secondary level teaching and university level teaching.

12. The finding of this study indicate a direct relation between length of stay in the United States and divergence of perceptions. The longer one has stayed in the U.S., the less emphasis he places on university output goals. Most of the comments on the questionnaire by participants were given by individuals of four or more years stay in the U.S. in attempts to rationalize their stands on various issues.

13. People from the eastern parts of the Kingdom of Saudi Arabia advocate student oriented goals more strongly than do people of other areas. They also advocate university direct services goals.

14. Marital status has little affect on people's perceptions of university goals, except in the case of religion as a university goal. Here married students advocate this goal more than do single students.

ever, the ten top-ranked goal items, to the Saudi students in the United States, are, in descending order ; «Keep up to date» ; «protect student's right of inquiry» ; «protect academic freedom» ; «develop student's objectivity« ; «insure efficient goal attainment»; «run university democratically» ; «cultivate student's intellect»; «carry on applied research» ; «train students for scholarship / research» ; and «prepare student for useful careers.»

2. The findings generally support the idea that support goals are as important as the output goals of teaching, research, and service. Five of the ten top ranked goal items were under the support heading.

3. Direct service as a university goal was not strongly emphasized. None of this category's seven items were among the 15 top ranked goals. Furthermore, the cumulative average of this category was the next to the least for all categories.

4. The selective admission as a university policy was given the lowest ranking by the Participants.

5. The question of religion as a university goal is the most controversial issue.

6. Category seven, «motivation», was the only category that was of no statistically significant difference on any of the eight different analyses conducted.

7. The finding did not support the previous research finding which stated that students of different major fields of study differ in their perceptions. No statistically significant differences were obtained in any of the eight categories in the analysis of this variable.

8. On analyzing the educational level variable, the results indicate that non-degree students display the greatest divergence of perceptions, and thus they were the main contributors to the obtained significant differences on categories.

9. Participants with past work experience emphasize the importance of «student-expressive» goals more than participants with no past experience.

82 — **El-Hebshi, Hashem**
Preparation of high school mathematics teachers in Saudi Arabia. Arizona State University, 1974.
vii, 60 p.

This study presents the current preparation of mathematics high school teachers in colleges of education in Saudi Arabia. Also is included a suggested program for mathematics majors as far as their preparation in mathematics is concerned. During the survey, a problem was noted in the program of the College of Education in Riyadh. Some misinterpretations of facts about the American system of semester hours and the study done by Dr. James Conant were noted. Therefore a comparison was exhibited that compares the semester system in Colege of Education in Riyadh and the study done by Dr. Conant. The following points and comments are stated in the proposed program :

1. The number of hours for graduation in the College of Education in Riyadh is to be from 120 to 130 semeter hours instead of 152.

2. The year-base system in the College of Education in Mecca needs a change to the semeter system.

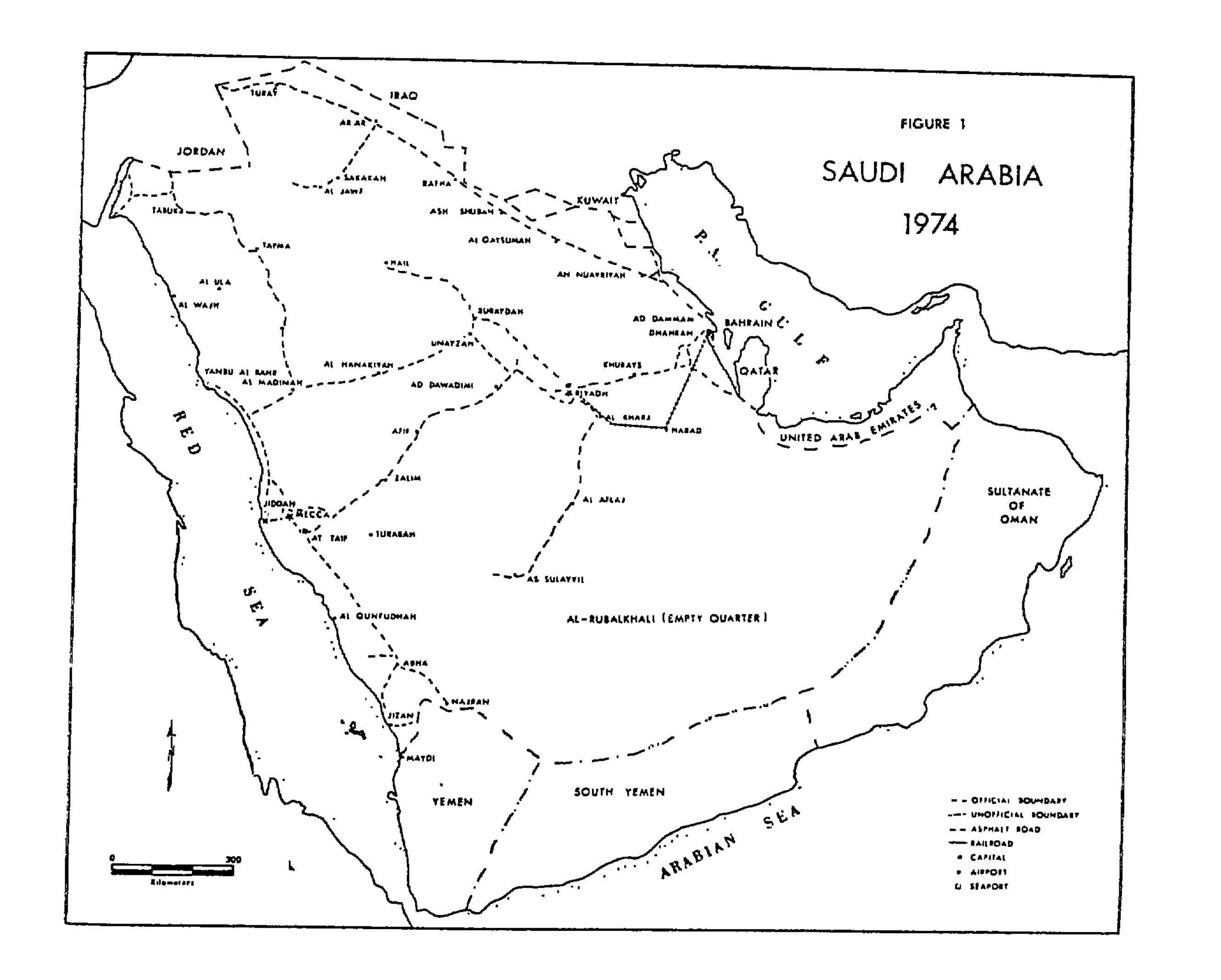
3. The number of hours in the major area (mathematics) should be approximately forty semester hours instead of ninetyone.

4. Mathematics electrives could start as early as after the series of calculus (12-15) instead of after seventy-six hours in the system of the College of Education in Riyadh.

83 — **Rasheed, Mohammad Ahmad.**
Saudi students in the United States ; a study of their perceptions of University goals and functions. University of Okal homa, 1972.
x, 177 p.

On the basis of the findings and with the limitations of this research, the following conclusions are drawn :

1. The participants emphasized all listed items quite highly ; how-


FIGURE 1
SAUDI ARABIA
1974
IRAQ
JORDAN
KUWAIT
P. G. U L F
BAHRAIN
QATAR
UNITED ARAB EMIRATES
SULTANATE OF OMAN
SOUTH YEMEN
YEMEN
RED SEA
ARABIAN SEA
AL-RUBALKHALI (EMPTY QUARTER)
TURAIF
ARAR
SAKAKAH
AL JAWF
RAFHA
ASH SHUBAH
AL QAYSUMAH
AN NUAYRIYAH
TABUK
TAYMA
AL ULA
AL WAJH
HAIL
BURAYDAH
UNAYZAH
AD DAMMAN
DHAHRAN
KHURAYS
RIYADH
AL KHARJ
HARAD
YANBU AL BAHR
AL MADINAH
AL HANAKIYAH
AD DAWADIMI
AFIF
ZALIM
JIDDAH
MECCA
AT TAIF
TURABAH
AL AFLAJ
AS SULAYYIL
AL QUNFUDHAH
ABHA
NAJRAN
JIZAN
MAYDI
OFFICIAL BOUNDARY
UNOFFICIAL BOUNDARY
ASPHALT ROAD
RAILROAD
CAPITAL
AIRPORT
SEAPORT
0
300
Kilometers

Development of Educational Budget in Saudi Arabia
For The Five Years 1967 - 1968 / 1971-1972
(In Thousand Saudi Riyals)[1]

School	1967-68 Sum & %	1968-69 Sum & %	1969-70 Sum & %	1970-71 Sum & %	1971-72 Sum & %
Ministry of Education	363.608 69.4%	388.984 65.1%	384.228 64.4%	427.158 64.2%	711.378 61.9%
Thagher Model Schools	2.840 0.5%	2.694 0.5%	2.347 0.4%	2.330 0.4%	5.046 0.4%
Assema Model Institute	1.073 0.2%	1.744 0.3%	1.739 0.3%	1.739 0.3%	3.896 0.3%
Girls' Education	74.40 14.2%	93.703 15.6%	95.440 16.0%	114.793 17.3%	239.299 20.8%
Religious Colleges and Institutes	26.762 5.1%	37.903 6.4%	37.449 6.3%	38.647 5.8%	50.464 4.4%
Islamic University	8.605 1.6%	9.057 1.5%	9.485 1.6%	9.226 1.4%	13.140 1.2%
Riyadh University	33.806 6.5%	44.553 6.5%	46.753 7.8%	50.858 7.6%	76.007 6.007
College of Petroleum	12.858 5.5%	18. 820 3.2%	19.147 3.2%	20.160 3.0%	21.643 1.9%
King Abdulaziz University	—	—	—	—	29.216 2.5%
Total	523.962 100%	597.459 100%	596.589 100%	664.911 100%	1.150.090[2] 100%

[1] At the present rates each U.S. $ 1.00 is equal to 3.50 Saudi Riyals (S.R.).

[2] Statistical Department, Ministry of Education, Saudi Arabia, **Educational** Statistics, 1971-72, p. 388.

sending summer caravans to places where Bedouin gather. The ministry teachers stay with the Bedouin all summer and conduct formal and informal classes to combat illitercy.[1]

All levels and kinds of public schools are government funded. Also, all stages and types of public schools are free, including textbooks and other necessary materials. Students of higher education, teacher training institutes, vocational education, and those of religious secondary institutes receive monthly allowances ranging from 200 to 350 S.R[2] Coeducation does not exist in the educational systems of Saudi

Schools, Students, and Teachers of Public and Private Education, 1971 - 1972.

Stages	Schools			Students		Teachers	
	Boys	Girls	Co-Educ,	Boys	Girls	Male	Female
Kindergarten	12	—	33	3999	2350	—	192
Elementary	1666	488	—	321043	153964	14111	5466
Intermediate	417	069	—	70183	13546	3524	669
Secondary	126	15	—	20035	2979	817	127
Teacher Training	018	45	—	7730	6723	594	355
Technical Education	007	—	—	899	—	257	—
Special Education	008	001	01	1155	132	244	55
Adult Education	624	—	—	46034	—	—	— 3
Grand Total	2878	618	34	471078	179694	19547	6864

[1]Ibid., p. 26

[2]Abdulaziz Al-Jallal, **Evaluation of the Vocational Schools in Saudi Arabia in Social and Economical Contex** (Unpublished doctoral dissertation, University of Colorado, 1973), p. 33.

[3]Other School Teachers

[4]Statistical Department, Ministry of Education, Saudi, **Educational Statistics**, 1971-72, p. 3.

Before 1926 education in Saudi Arabia was conducted at Katateeb[2] schools, and beyond this level it was available only to a very small segment of the population, generally the wealthy. At Katateeb school the Imam[3] was the only teacher, and the subjects taught were reading from the Koran,[4] some religious subjects, and writing. The learning method was rote memorization.

Since 1926 formal educational programs have developed very slowly. By 1953-1954 there were 326 elementary schools with enrollment of almost 44,000, and three secondary schools with about 500 students.[5]

A decisive point in the educational history of Saudi Arabia occurred in 1952 when the Ministry of Education was formed.[6] From that year until the present, a moderate number of educational programs have been established. As Table 1 indicates, there was a considerable increase between 1953-54 and 1971-72.

Consequently, with the increase in educational programs, the government budget for education has increased rapidly. Table 2 summarizes the development of education budget in Saudi Arabia for the five years. 1967-68 / 1971-72.

Despite all the preceding educational programs, illiteracy is still a major problem in Saudi Arabia. It is a bitter fact to state that the current illiteracy rate range from seventy-five to eighty-five per cent of the country's total population.[7] Realizing this problem, the Ministry of Education in 1967 expanded the campaign against illiteracy by

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[2]See the definition of terms.

[3]See the definition of terms.

[4]See the definition of terms.

[5]Norman C. Walpole, and others, **Area Handbook For Saudi Arabia** (Washington, D.C. : United States Government Printing Office, 1971), p. 93.

[6]Arab Information Center, **Education in the Arab State** Information Paper No. 25 (January, 1966), p. 164.

[7]Humoud Badr, **Public Relations Activities at Two Saudi Arabian Universities,** (Unpublished doctoral dissertation, Michigan State University, 1972), p. 26

EDUCATION & TEACHING MATERIAL

81 — **Assaneea, Abdullah A.**

An Analysis of the contemprary educational geography in the public Schools of Saudi Arabia. University of Oklahoma, 1975. ix, 165 p. maps tab.

Saudi Arabia is one of the largest countries in the Middle East. It occupies the major part of the Arabian Peninsula. It has an area of about 850,000 square miles. Population estimates range from six million to seven million. It is bordered on the north by the Arab states of Kuwait, Iraq, and Jordan ; on the south by Yemen, South Yemen, and Sultanate of Oman ; on the west by the Red Sea; and on the east by the Persian Arabian Gulf, Qatar and the United Arab Emirates (Figure 1)

Since this study deals with the investigation of geographic education in the public schools of Saudi Arabia, it is worthwhile to familiarize the reader with basic information about the educational system of the country and the background of the problem. Consequently, two topics will be presented here : the first is the general setting of the investigation which will deal with the educational system of Saudi Arabia ; the second is background of the problem of this research.

The General Setting Of The Investigation.

Formal education in Saudi Arabia is recent. It was not until 1926 that the first formal elementary school was inaugurated. In that year the newly established Department of Education opened four formal elementary schools.[1]

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[1]Hassan Al-eshaikh «History of Educational Movement in the Kingdom of Saudi Arabia», **Kafelat Azzait**, Vol. 20 (1972), pp. 3-9, (in Arabic).

Special thanks are also extended to the author's father Abdulla, his brothers Abdel-Aziz, Ibrahim, and Ali, and to his sisters for their encouragement and patience for the long years of study abroad.

A special thanks is also extended to Mrs. Emily Parker for typing the dissertation.

80 — **Natto, Ibrahim Abbas.**
An Analysis of leadership role perceptions and ethnic membership of elementary school principals in Taxes. The University of Taxes, 1973.
xi, 147 p.

Elementary school principals in Texas do seem to perceive their instructional leadership roles as more important than those of administrative leadership. These preferences are strong for both Anglo-American and Mexican-American principals but not for Afro-American principals. Principals in school districts over 5000 pupils tend to be more strongly aware of the importance of instructional leadership roles than those in very small school districts. This pattern is also replicated at the school level, where principals in large schools appear to be more strongly aware of the importance of instructional leadership roles than principals in small schools.

Apparently, two decades of emphasis on the improvement of instruction has come to be reflected in the perceptions of Texas elementary school principals. Whether they actually do emphasize instructional leadership over administrative leadership roles or do so well we do not know. However, the strong, fairly persistent emphasis on the importance of instructional leadership is clearly seen in this study.

EDUCATION - ELEMENTARY PRIMARY

79 — **Manuie, Mohamad Abdulla.**

A study of teacher-principal perceptions of the organizational climate in selected schools in Riyadh, Saudi Arabia. Norman, Oklahoma, The University of Graduate College, 1976.

The author would like to take this opportunity to express his sincere appreciation and gratitude to Dr. Jack F. Parker, the author's major professor and committee chairman, for his constant guidance and brilliant advice in all the phases of the graduate work. He has so generously given continuous encouragement, kindness and time for the purpose of the initiation and direction of this research. He has read, edited, and corrected the manuscript several times and has made many important suggestions in its preparation. This study would not be possible without his assistance and concern for which the author is very grateful.

A special thanks and appreciation are extended to Dr. Gerald D. Kidd, Dr. Robert F. Bibens, and Dr. Gene Pingleton for their acceptance of being committee members and for their guidance and encouragement during the course work and for their useful suggestions during the preparation of this manuscript. A special thanks is also extended to Dr. Robert Black for his useful suggestions and assistance during the analysis of the data.

The author is also grateful to the teachers and principals who participated in this study, and to the Ministry of Education and the General Administration of Girls' Education and their school districts in Riyadh for their cooperation and help.

The author's most sincere thanks go also to his wife Nora Othman Atik and his son Walid for their understanding, encouragement and patience during the long hours of library studies and research which made it all possible.

encountered, and lessons learned from other countries to the religious, cultural, and educational context of Saudi Arabia.

A proposal is made to establish a multi-media open university (Halaqhat Open University) in the western region of Saudi Arabia. In addition, alternative approaches are suggested to multiply existing higher education and training resources, with emphasis on King Abd al-Aziz University. It is the author's belief that implementing his recommendations will contribute to the higher education and training resources necessary to meet Saudi Arabia's development requirements.

EDUCATION AUDIVISUAL

78 — **Hafiz, Talal Khalid.**
The potential role of educational - instructional television in higher education and human resources development for the Kingdom of Saudi Arabia. University of Calorado, 1976.

The accelerated development of Saudi Arabia is demanding more trained professionals to implement the country's modernization goals. Incoming oil revenues are exceeding the Kingdom's absorptive capacity. Thus, financial surplus is accelerating the development process. Consequently, higher education is seen as a major source of qualified human resources. However, higher education is sulverted by acute shortages of faculties and facilities.

At this time mass media, and particularly television, enters as a catolyst to multiply scare educational resources. An analytical projective approach is adopted to identify trends of television research and application to education and human resources development in both developing and technologically advanced countries. The cases reviewed are : Saudi Arabia, Japan, France, Italy, Chicago's Television College (U.S.), Midwest Program on Airborne Television Instruction (U.S.), Sweden, West Germany, Britain's Open University, Canada, Australia, India, Algeria, Ghana, Niger, Ivory Coast, El Salvador, American Somoa, Egypt, and Korea.

The analysis and evaluation of multi-media application to other countries' educational and human resources development provide a wide range of situations. Therefore, research evidence from both developing and technologically advanced countries offers alternatives to Saudi developers in the adaptation of these experiences to the country's educational and manpower requirements. Careful evaluation is necessary to avoid duplicated effort and unnecessary expenditure.

The Saudis are proudly conscious of their religious and traditional heritages. Thus, this study considers actions taken, problems

STATEMENT OF THE PROBLEM

At present, the Ministry of Education of Saudi Arabia exhibits a highly inconsistent hierarchical structure, characterized by a lack of precise specification of functions and scope of offices and an inconsistent set of reporting relationships among organizational offices. Several of the programs most crucial to the accomplishment of overall educational objectives are in need of further improvements in planning, and administration. In addition, the specific administrative policies and procedures now in operation are outdated and in need of comprehensive review and revision. In view of the long-range national objectives to be accomplished by the educational system, the study here presented seeks to provide workable programs and procedures through the presentation of a comprehensive plan for improving the organization of the Ministry of Education.

DEFINITION OF TERMS

Sharia : Islamic Law. All administrative rules must agree with this body of fundamental religious law.

Kuttab : The system of religious schools in the Kingdom of Saudi Arabia. This school is held by the Mosque by the Imam, Religious Instructor and is attended by boys between the ages of six and twelve.

Wazarat Al Marif : The Arabic name for the Ministry of Education.

Ulema : The equivalent of a Catholic Cardinal in terms of Moslem religious outhority.

The Kor-an : The Holy Book of Moslem Religious.

administration in the Ministry, and through extensive consultation with the officials of the Ministry and with a number of outside experts, several basic organizational problems have come to my attention which have served only to impede the effective functioning of this agency. Foremost of the problems is the lack of adequate specification of the duties and the scope of authority of offices in the Ministry, and general inconsistency and organizational confusion which, to date, has characterized the hierarchical structure of the Ministry of Education.

In 1968, a partial reoganization of the Ministry was effected, concentrated primarily on the top key management level of the organization. Because this reorganization did not sufficiently address itself to these fundamental organizational problems, it did not accomplish the goals for which it was intended.

As an aid in this research, a questionnaire was prepared and administered to key management personnel in the Ministry of Education. In this way, their perceptions concerning organizational problems in the Ministry could be taken into account, both as a check on the author's own judgement and as an indicator of the types of recommendations that would be administratively possible and politically acceptable in the context of the Saudi Arabian organizational culture. As a result, the recommendations contained in this dissertation are ones which have a high probability of being implemented. It is hoped that this dissertation will represent a positive contribution to the sincere efforts of educators in Saudi Arabia to continue the development of a high quality educational system.

This dissertation should outline some of the relevant historical and legal background leading to the establishment of the Ministry of Education, and describe in detail the Initial Organization of the Ministry as well as the changes and effects of the 1968 reorganization. The problems arising from these organizational structures will be developed and analyzed in the light of extensive research and study in the area of organizational theory as applied to educational institutions.

In answer to these problems, a detailed proposal for general reorganization is presented, outlining as justification, the specific advantages over the old organizations that such reorganization should be expected to produce, if implemented.

educational needs of the country as a whole. Therefore, the districts are in a number of instances inadequate in size as well as being unsatisfactory in other respects. Although the study reported herein cannot provide final answers to the questions it raises, it should be useful to those who will be concerned in the years to come with organizing public education to meet the tremendously varying needs of the Saudi Arabian people.

The Development of the School District System in Arabia

The leaders of Saudi Arabia have had high regard for formal education as an important instrument for uplifting and transforming the society. They are well aware of the relationship of education to the development of the country. However, it is obvious that a great deal remains to be accomplished in the effort to provide adequate educational services. Illiteracy is a major problem in Arabia. Solving that problem will require reaching a large percentage of the population that does not live in urban areas, but wanders from place to place in the tradition of nomads in the vast, sandy wastelands that comprise huge geographical areas of the Kingdom. The exact dimensions of this problem are not precisely known because of the limited data available on both the percentage of illiteracy and the percentage that is nomadic in life style.

One of the major difficulties in meeting these formidable educational challenges is the shortage of human resources, planning expertise, and organizational limitations.

77 — **Towagry, Ali Mohammed**
Organization analysis and proposed recorganization of the Ministry of Education of the Kingdom of Saudi Arabia. Arkansas University, 1973.
145 p.

The Ministry of Education in Saudi Arabia is presently undergoing a period of administrative reorganization, with the object of achieving a more efficient and productive accomplishment of the educational goals and objectives, so vital to the overall growth and progress of the nation as a whole. Throughout fifteen years of experience in ad·

6. A research project should be required.

7. Competence in the English language, a grade average of «B» or higher, thirty-two units of graduate credit, and a research project should comprise the graduation requirements.

8. The evaluation and modification of programs should be based on systematic follow-up procedures, group evaluation seminars, and private conferences between professors and students.

9. Faculty members should possess a doctorate degree and professional expertise.

10. The content of in-service programs for summer school should be determined by the faculty of Educational Administration and the Ministry of Education. The appropriate activities should be scheduled.

76 — **Al-Salloom, Hamad I.**
A study of the relationship of school district size and administrative practices in schools in Saudi Arabia. The University of Oklahoma, 1974.
x, 251. p.

This study was designed to investigate the school district arrangements in Saudi Arabia. It was motivated by a desire to contribute to the improvement of local and regional school district organizations so that educational services to Saudi Arabia might be improved, both in quality and quantity.

The objective was to discover the current status of these districts and to attempt to determine whether the size of these school districts was related to the services provided. A secondary objective was to use the findings of the research to suggest a defensible plan reorganizing the districts.

Determining optimal school district size is a problem common to the school systems of most nations. However, it is an especially complicated and crucial problem in Arabia. The existing district struture came into being with very little overall planning related to the

3. The respondents and The University ot Arizona were in closer agreement on the instructional approaches than were actually in effect at Riyad University.

4. The Saudi Arabia officials and The University of Arizona were in agreement that field-related experiences which currently do not exist at Riyad University should be used.

5. Student research is not required by Riyad University.

6. The questionnaire respondents recommended more graduation requirements than currently exist at Riyad University.

7. There was agreement among Riyad University, The University of Arizona, and the respondents as to the necessity to evaluate the progress of students.

8. Riyad University, The University of Arizona, and the respondents were in agreement on the qualifications of the faculty members.

9. The University of Arizona and Saudi Arabian officials perceived the need for in-service programs. Such programs do not currently exist at Riyad University.

The major recommendations were as follows :

1. The Master of Education degree should be awarded upon successful completion of the educational administration program of thirty-two semester hours.

2. Administration students should be recruited through the school systems and universities. A selection committee should be formed.

3. Program courses should be those noted essential and desirable in each subject category.

4. Lectures, seminars, laboratories, case study, and textbooks should form the basis for instructional methodology.

5. Internship, practicum, independent study, and surveys of the field should be the components of a field-related experience.

EDUCATION ADMINISTRATION

75 — **Hakim, Muntazar Hamzah**
The Preparation of educational administrators in Saudi Arabia.
Arizona University, 1974.
xiv, 161 p.

The study described the components and elements of educational administration programs at The University of Arizona and Riyad University and identified an ideal program for Saudi Arabia. Criteria from the two existing programs compatible with perceptions of Saudi Arabian officials were incorporated in a new program for Saudi Arabia.

Catalogues and printed materials from Riyad University and The University of Arizona relative to their Educational Administration programs were surveyed. The components and elements of the two programs based on eleven criteria from the professional literature for the training of educational administrators were described. A questionnaire based on these critaira was administered to Saudi Arabian officials to determine their perception of an ideal program for Saudi Arabia. The two existing programs were compared with the questionnaire data to determine if existing programs in Riyad University were meeting the needs of school administrators in Saudi Arabia as perceived by the questionnaire respondents. The final phase was the development of a recommended program for the preparation of educational administrators in Saudi Arabia.

The major findings were as follows :

1. The degree offered at Riyad University and The University of Arizona differ substantially. The Master of Education degree was suggested for Saudi Arabia.

2. Questionnaire data suggested an open system for rectruitment, but a tighter system for selection than presently exists at Riyad University.

This evolving typology of constructs was to serve as a device for evaluation of any teacher education program, or any education program, that is based on thinking within the Islamic tradition.

A grid was also formulated, using the progressive and traditional evolving type constructs and the dimensions of specificity of decisions, congruency, and adaptability.

An application of planned reform in teacher education programs, based on a five-point opinionaire, was then discussed in the case of a sample Muslim country, Saudi Arabia, in order to explain descriptively a plan for helping teachers to become curriculum planners and decision makers. The proposed teacher edtcation program for preparing critical thinking, curriculum planning and decision making teachers, was presented in terms of hierarchical constructs. This program was designed to serve the end of education, which, as described in the study, is to enable thinking to yield the conscious ability to grasp, understand, and live the culture.

74 — Zafar, Mohamed Ismail.
An Investigation of factors which are associated with enrollment and non-enrollment in teacher education programs of Public Secondary Education in Saudi Arabia. Michigan State University, Curriculum, 1971.
262 p. 30 cm.

One of the fundamental problems confronting Saudi Arabia as a nation and its secondary education in particular concerns the shortage of qualified teachers in public secondary education (grades 7-12), who are Saudi citizens. For a variety of social, economic, and political reasons, it is suggested that only qualified citizen teachers will be able to improve the quality of education.

The purpases of the study were : (1) to investigate the factors which are associated with enrollment and non-enrollment in the teacher education programs (Colleges of Education) ; (2) to find out the most important factors which influence the supply of and need for qualified Saudi teachers in the present public secondary education system (grades 7-12); and (3) propose procedures intend to meet the anticipated needs of public secondary education through the coming ten years (beginning with 1972-73).

EDUCATION TEACHER TRAINING

73 — **Al-Safadi, Ahmad Issam**

An Evolving typology of constructs of critical thinking, curriculum planning and decision making in teacher education programs based on the Islamic ideology ; the case of Saudi Arabia. State University of New York-Buffalo Faculty of Educational Studies, 1975.

338 p.

Thinking, defined in this study as judgement, occurs when a sensed reality is associated with previous knowledge in the mind of the thinker. The study defined sensing-association as being basic thinking ; other levels of thinking, including critical thinking, were then discussed. The purpose of the study was to investigate the operation of critical (deep) thinking in the processes of curriculum planning and teacher decision making. Critical thinking, sometimes referred to in the study as deep thinking (tafkeer a'meeq), was defined generally as an ability to think clearly and analytically, an ability to make inferences, to draw conclusions based upon evidence, and to make decisions that are followed by actions.

Three other areas of concern were curriculum planning, decision making, and teacher education programs.

Investigating within the scope of the Islamic ideology necessitated research and description of many aspects of culture, civilization, progress, and education.

The main conceptual construct that could be applied to all the issues of this study was found to be hierarchical order typology. The typology was formulated through developing constructs in these and other issues and then relating them in an evolving manner. The «progressive» and «traditional» evolving type constructs deevloped in this study are similar in method to paradigm, construct, and ideal type structuring.

A questionnaire was sent to all 17 principals and to all 126 education and psychology teachers of the above-mentioned institutions. A total of 122 questionnaire were returned (16 principals and 106 teachers) and were tabulated at the computer center at the University of Northern Colorado.

Findings

1. The principals indicated strong agreement with all of the educational concept in the questionnaire, except Nos. 14 and 32, which were at the agreement level.

2. The teachers indicated strong agreement for all concepts, except for No. 14, which was at the agreement level.

3. The respondents - both teachers and principals indicated the high value of all the concepts with strong agreement, except for No. 14, on which they indicated agreement.

4. The respondents - both teachers and pricipals - agreed, on those items with which they were familiar, that the existing curricula does not enable prospective elementary school teachers to achieve competence in the concepts listed in the questionnaire.

5. There were no statistically significant differences between the values teachers and principals assigned the concept. The correlation between the teachers' and the principals' rankings of all items was rs = 0.837 which was far beyond the .05 level significance.

6. There were no statistically significant differences concerning the judgement of the curricula by teachers and principals. The correlation between the teachers' and the principals' ranking of all items was rs = 0.696 which was beyond the .05 level of significance.

Saudi Arabia as provided by the psychology and education courses offered in Teacher Training Institutions.

Procedures

A questionnaire was developed by the writer with the guidance of his research committee and mailed to the Teacher Training Institutions for Elementary Schools in Saudi Arabia. The questionnaire contained the following 32 topics in the field of educational psychology :

1. Motivating the learner.
2. Training creative thinking and problem-solving skills.
3. Adapting instruction to individual differences.
4. Interpersonal communication.
5. The control of attention in the classroom.
6. Humanitistic approaches to learning.
7. Personality and learning.
8. The social psychology of classroom learning.
9. Family socialization experiences and classroom behavior.
10. Behavior control and classroom discipline.
11. Poverty and learning.
12. Application of instructional system to the classroom.
13. The acquisition of reading skills.
14. Controversial issues in school learning.
15. Measure of school achievement and individuual differences.
16. Intelligence and learning.
17. Concept learning.
18. Mental health and learning.
19. Recognizing the potential drop-outs and remdial programs.
20. Speech behavior in the classroom.
21. Media and learning.
22. Conscience development in children and adolescents.
23. The evaluation of educational outcomes.
24. The diagnosis and remediation of learning disabilities.
25. Cognitive devlopment in children.
26. Behavior modification applied to learning situations.
27. Evaluation procedures for teacher-made tests.
28. Language and learning.
29. Philosophical basis of learning theory.
30. Theories of human learning.
31. Learning task analysis.
32. Descriptive statistics.

neering feilds. If belief systems exist in a vacuum, then this relationship may have little value. But if a belief system is a predisposition to action, and if it provides indications of how the whole personality of an individual is formed, as Rokeach's theory asserts, then we have an important information describing the interaction between personality and fields of study. The implication of such information for the goals and practices of higher education is very pertinent.

Open-mindedness, as a legitimate goal of higher education, can be enhanced when college education is seen, not as a matter of acquiring skills and information and preparing for a profession or occupation, but, as a total experinence which can help the individual to broaden his mind, to free himself from prejudice, and to give him a sense of identity. This implies that a basic core of liberal education courses should be integrated in the program of each student without regard to his area of specialization. The recent students' rebellions and unrest have pointed out how college education, especially at the big universities, is becoming more irrelevant to students' needs and developments.

An understanding of the ways different personality characteristics relate to different kinds of curricula would provide a sounder basis for selecting students and helping them find fields of study that are suitable to them. The knowledge of the personality characteristics of a particular student can be helpful in clarifying the related needs of the student and can provide a guide in helping him pursue the type of curriculum that would produce in him the most beneficial growth. The implication of this is that the prediction of a student's success in a particular field is sounder when it is derived from the knowledge of the whole range of the student's personality profile rather than from knowledge of aptitude measures alone.

72 — **Subait, Abdulrahman S.**
The Educational psychological preparation of elementary school teachers in Saudi Arabia. University of Northern Colorado, 1976.
xii, 137 p.

The Problem Stated

The problem of the study was to evaluate the educational psychological preparation of brospective elementary school teachers in

mean scores than did the Business and Engineering group ($p. < .05$) but not significantly different from the Natural Science group.

(2) The difference among the groups appears to be related to the number of credit hours they have completed in their majors. When each group was compared with the other group at Levels I and II, no significant differences were found. At Level III, there were significant differences between the Social Science and the Business and Engineering groups and between Humanities and the Social Science groups ($p. < .05$).

The validity of the findings can be supported by logical and theoretical explanation. From our present knowledge of the goals, content, and structure of major areas under study, we can expect that they differ in their relationship to such personality characteristics as dogmatism. Social Science and Humanityies fields are oriented toward intellectual and acodemic pursuit more than toward vocational and practical application. In terms of social role theory, Social Science and Humanities students are expected to be more sophisticated in evaluating social ideas and beliefs and more tolerant toward differing social and political ideology than students in other fields.

(3) There is a decrease in dogmatism with advancement in college education. The «F» - ratio for comparison by Level was significant beyond the one per cent level of confidence.

(4) The largest drop in dogmatism appears to occur at the first years in college. The results indicated that there were significant differences between Levels I and II, and I and III ($p. < .05$, and $p. < .01$, respectively). No significant difference between Levels II and III was found.

(5) Although there was significant decrease in dogmatism for all groups with more credit hours completed (Humanities group excluded), the largest mean difference was between the Social Science groups. This may suggest that greater change in dogmatism is associated with enrollment in Social Science fields.

Implications

It appears from the results of the present study that Social Science and Humanities fields are more positively correlated with open-belief system than the Natural Science and Business and Engi-

On the basis of Rokeach's theory of belief system,[1] Getzels and Guba's descriptive model of social behavior,[2] and empirical research,[3] the study predicted that Social Science and Humanities students are less dogmatic in their belief systems than Natural Science and Business and Engineering students. In order to test the basic research hypothesis of the study, nine null hypotheses were formulated, testing for significant differhence between Areas, between Levels for all Areas within Levels, and between Levels within Areas.

The sample for the study consisted of 408 students attending the University of Oklahoma during the Fall semester of 1968-69. They were given the **Dogmatism Scale, Form E**, along with a background information questionnaire while meeting in their regular classes.

Two-way analysis of variance with a 4 x 3 factorial design was used as the major statistical test. The F-ratios for difference between Areas and difference between Levels were both found to be significant at the .01 level. Tukey's test for multiple comparisons of means was used to determine significant difference between each pair of means. Out of 39 comparisons performed, 12 proved to be statistically significant and 27 were not significant.

Conclusions

From the results presented and within the limitations of the study, the following conclusions appear to be warranted :

(1) The findings generally support the basic research hypothesis that Social Science and Humanities students are less dogmatic in their belief systems than those majoring in Natural Science and Business and Engineering. The «F» test was found to be significant beyond the one per cent level of confidence. The mean compariscon of each group has shown that the Social Science group had significantly lower dogmatism scores than did either the Natural Science group or the Business and Engineering group ($p. < .01$, and $p. < .05$, respectively). The Humanities roup had sinificantly lower dogmatism

[1]Milton Rockeach, 1960, **op. cit.**

[2]J. W. Getzels and G. E Guba, 1957, **op. cit.**, pp. 423-434.

[3]Z.F. Gamson, 1966, **opj. cit.**, pp. 46-73 ; Bidwell and Vreeland, 1966, **pp. cit.**, 237-254.

more conservative. But the primary concern of most of these studies has been the comparison of single beliefs and single attitudes with major emphasis on their contents.

The present study was conducted within the framework of Rokeach's belief system theory. This theory was constructed as a descriptive model to account for the underlying congitive structure of all beliefs, without regard to their specific contents. A belief system refers to the total network of a person's religious-social-philosophic-scientific beliefs. It refers to the way in which the individual views the world he lives in. This definition is comprehensive in its scope, and emphasizes the cognitive structure of all beliefs, irrespective to their contents.

The cognitive structure of a belief system is determined by its «openness» or «closedness.» This refers to the degree of dogmatism in one's belief system. To the extent that a person is able to receive and evaluate information in terms of its intrinsic metris, he is said to have an «open» or less dogmatic belief system. To the extent that he rejects or resists information without regard to its intrinsic merits, he is said to have a «closed» or more dogmatic belief system.

The **Dogmatism Scale** was designed to measure the degree of openness and closedness of belief system. It was developed deductively by studying the characteristics of closed belief systems and constructing statements which tap these characteristics. The items were assumed to be general and relatively free of any specific ideological content. The continuing research has supported the reliability and validity of the Scale. Responses to the items included in the Scale are scored by the method of summated ratings, the higher the score, the greater the degree of «closedness.»

Field of study was defined as the formal academic program which a student selects as his undergraduate major at the University of Oklahoma. Students majoring in different fields were grouped under four general areas : Social Science, Humanities, Natural Science, and Business and Engineering. Within each area students were divided into three Levels : Level I were designated as the students who have completed from one to five credit hours in their majors ; Level II are those who have completed between six to eighteen credit hours in their majors ; and Level III are those who have completed more than eighteen credit hours in their majors.

total sample was 80 university students. The subjects were given the Defining Issues Test (DIT), a questionnaire based on six moral situations. The subjects were asked to read each story depicting the moral situations. The subjects were asked to read each story depicting the moral situation and then read each one of twelve statements carefully and rank its importance. Finally, the subjects were asked to choose the four most important statements giving each his first, second,, third, and fourth choice. The choices were given a weight value of 4, 3, 2, and 1, respectively. The scores of subjects were computed according to the Manual for Defining Issues Test (Rest, 1974) and were treated statistically by using biserial correlation coefficient to test significant relationships between the variables as indicated above and the percentages of moral statements made by each comparable group were contrasted.

Findings and Conclusions : There was a significant relationship between culture as defined here and the subjects' scores on the DIT at .05. The American subjects were found to be higher on both Stage 5 and Stage 6 than the Saudi Arabian subjects and on Stage 4 the Saudi Arabia subjects were higher than the American subjects. The educational variable was found to have a significant relationship with the subjects' scores on the DIT at .05. The graduate group was higher on Stages 5 and 6 than the undergraduate group. On Stake 4, both groups scored about equal. On Stages 2 and 3, the undergraduate group had more percentage than the graduate group. The rural-urban variable and the temporal variable were found to have no significant relationship with the Saudi Arabian subjects' scores on the DIT. The conclusion from the above finding was that cultural differences did exist on the moral judgements of the subjects and that education level was not independant from the subjects' scores on the DIT.

71 — Sharie, Abdullah Nafie
A Comparative study of belief systems of college students majoring in different fields. Oklahoma University, 1969.
ix, 110 p.

The purpose of the study was to compare the degree of «openness» and «closedness» of belief systems of colege students majoring in different fields of study. Previous studies in the areas of students« beliefs and attitudes have indicated that students in certain fields of tend to be more liberal, while students in other fields tend to be

ployed toward irradicating illiteracy do not meet the needs of the population toward which they are aimed.

The Government of Saudi Arabia has a great problem of illiteracy which it realizes must be dealt with in order for progress to take place. In 1954 the Ministry of Education established the Popular Culture Department which deals with irradication of illiteracy and adult education. Its budget has increased beginning in 1962-63. In that year the allowance was, 1,440,720 Saudi riyals (3.75 riyals to the dollar), by 1971-72 the budget was 3,140,400.

Although at its beginning this department was attached to the Primary Education Department, it has increased in importance and was made an independent unit 1958. This change represented a very significant step since it recognized the great importance of adult literacy in that country.

The work of irradication of illiteracy is not only carried out by the Ministry of Education, but is also dealt with by many other government and private agencies by establishing adult education classes for their own employees or providing encouragement and time to continue their education under the Ministry of Education.

70 — **Ismail, Mohammad Abdul-Rahman**
A Cross-cultural study of moral Judgement : the relationship between American and Saudi Arabian University students on the defining issues test. Oklahoma State University, 1976.
vii, 77 p.

Scope and Method of Study : This study was intended to investigate the relationship between the subjects' scores on the DIT and the following specific variables : (1) culture as defined by the American and Saudi Arabian and as represented by the subjects from both cultures who participated in the study, (2) two levels of education : graduate and undergraduate, (3) rural-urban variable as defined by those subjects in the Saudi Arabian group who lived in a city or a village in their home country, and (4) length of time spent by the Saudi Arabian group in the U.S.A. as defined arbitrarily here by two years or more less than two years. The subjects were 20 American-can graduate and 20 American undergraduate students and 19 Saudi Arabian graduate and 21 Saudi Arabian undergraduate students. The

EDUCATION PSYCHOLOGY

69 — **Hamidi, Abdulrahaman Sead**
Motivational factors toward literacy in Riyad, Saudi Arabia.
Arizona University, 1975.
193 p.

The population of the world is about 3,400,000,000. It increases about 8,000 persons each hour, 200,000 per day, or 70,000,000 per year. If the rate of increase continues at this pace, the world's population will be doubled by the end of the twentieth century. According to a UNESCO study over a five year period of those individuals who begin primary education and quiet before attaining an acceptable level of functional literacy numbers 150,000,000 (1970 : 45).

According to the UNESCO study (1970 : 45) of the Arab world its population is about 108,464,000. The percentage of male illiteracy is 67 per cent, while female illiteracy is 85 per cent. Most illiteracy occurs in villages, isolated areas, and among nomads.

The society of the Arab world is moving from backwardness and imitation of progress toward real steps toward progress and development. Every Arab nation is making plans to increase the quality of every aspect of social and economic life. Social and economic scientists believe that development is a result of various combinations of natural resources, culture, and manpower. However, the United Nations (1962 : 4) has emphasized that development is more than an increase in material wealth but an improvement of social, cultural, and institutional conditions. The Arab countries feel that illiteracy is a problem which greatly influences the life of a country in all above aspects and are therefore taking energetic steps to increase the rate of literacy.

The Arab world desperately wants to develop in all aspects but how much development can take place with two-thirds of the male working force illiterate ? Compounding this probem is the general feeling among educators that the present educational techniques em-

In view of the above findings with regard to secondary school science education in Saudi Arabia there seems to be an urgent need to : (1) attract more national science students to the teaching profession. (2) improve science teaching methods by establishing in-service training programs for present science teachers, (3) take into serious consideration professional preparation in hiring contracted science teachers, (4) reassess national objectives of science teaching, (5) review and upgrade science textbooks, (6) upgrade classroom and laboratory science facilities, equipment and supplies and (7) establish instructional media centers in the schools.

One hundred and seventy-eight usable responses were received from male and female science teachers at 42 public secondary schools that offered a three-year program of science instruction in 1973—74. Usable responses were also received from 147 male and female science students who graduated from 38 public secondary schools in 1973—74 and are presently enrolled as university science freshmen is Saudi Arabia. Two similar questionnaires were constructed to secure quantitative data from the teachers and studients concerning their perceptions of the above aspects of secondary school science education. Some qualitative data were obtained from personal interviews with university science professors and secondary school supervisors. Additional information was also obtained from the author's examination of related studies and official reports concerning science education in Saudi Arabia, and from his personal observations during visitations to most of the secondary schools included in this study. In general the study discovered :

1. Less than six percent of all public secondary school science teachers in 1973—74 were nationals. 2. The academic preservice preparation of the majority of science teachers could be described as weak. 3. A majority of the science teachers did not have professional preparation and did not participate in in-service education programs. 4. Teachers indicated high perceptions if individual and society-centered objectives of science teaching, while students indicated high perceptions of subject matter-centered objectives. 5. Teachers and students described most of the characteristics of the adequacy of science textbooks as medium. No one characteristic was rated as high. 6. Teachers and students reported frequent use of classroom and laboratory traditional teaching methods (mainly the lecture and teacher demonstration). 7. A majority of the teachers and students categorized most of the laboratory science facilities, equipment and supplies as ranging from available but inadequate to non-available. Small-sized schools were the least equipped and supplied. 8. Science instruction in most of the secondary schools is based on the textbook. Other print media and basic instuctional aids (films, slides, models, etc.) are almost nonexistent.

4. Taken individually and collectively, all 12 of the Piagetian tasks correlated positively at the 0.01 level with the **Arithmetic Ability Test** scores.

5. Individually, all 12 of the Piagetian tasks had positive correlation coefficients with the Midyear Arithmetic School Grades. Seven of these coefficients were significant at the 0.01 level, three were significant at the 0.02 level, and two were significant at the 0.05 level. Collectively, the children's logical thinking correlated with the Midyear Arithmetic School Grades positively at the 0.01 level.

6. The children's chronological age correlated positively at the 0.01 level with the total conservation scores. Taken individually, two of the twelve Piagetian tasks correlated with age positively at the 0.01 level, and three at the 0.02 level ; but seven of the tasks failed to show any significant correlation with age.

7. The three arithmetic measures of this research correlated positively at the 0.01 level with each other.

8. No apparent relationship could be detected between the children's chronological age their performance on arithmetics.

9. Each two of the three main variables, namely, Conservation scores, **Arithmetic Readiness Test** scores, and **Arithmetic Ability Test** scores, have contributed significantly to high predictability of the other third criterion variable.

68 — **Al Mazyed, Mazyed Ibrahim**

Science education in public secondary schools in S.A. as perceived by science teachers & science students.
Oregon Univ. 1975.

This study primarily dealt with the question : What perceptions do science teachers and science students have of public secondary school science education in Saudi Arabia ? It investigated the background of science teachers ; and the perceptions of the teachers and students of pertinent curricular and instructional factors, adequacy of science facilities, equipment and supplies, and the extent of use of instructional aids in science teaching in their schools.

Population

One hundred Saudi male children were chosen randomly from the first grade classes of four elementary public schools in different parts of Saudi Arabia.

Procedures

Data were obtained in the following ways :

1. The Concept Assessment Kit-Conservation was administered to the children individually to measure their performance on 12 Piagetian logical thinking tasks.

2. The children's arithmetic readiness was measured by their performance on **Arithmetic Readiness Test.**

3. The children's arithmetic ability was determined by their performance on **Arithmetic Ability Test.**

4. The children's arithmetic achievement was determined by their Midyear Arithmetic School Gradse, which were obtained from their school records.

Statistics

The data were subjected to the following statistical analysis :

1. The Pearson Product-Moment Correlation.

2. Multiple linear regression analysis.

Results

1. The large majority of the first grade Saudi male children failed to conserve any of the 12 Piagetian logical thinking tasks.

2. The children's conservation of number was the easiest and conservation of weight was the most difficult task.

3. Taken individually and collectively all but one of the 12 Piagetian tasks correlated positively at the 0.01 level with the **Arithmetic Readiness Test** scores. One task, continuous quantity, correlated with it positively at the 0.02 level.

A. The foreign student seems to comprehend the material but cannot express himself adequately in the English language.

B. The foreign sacrifices time which should be spent on the course course content in order to spend time looking up knowns in the dictionary.

C. Cultural and social differences divide the foreign student's attention and concentration on his studies.

D. If a foreign student receives a low grade in one course, it may lower his overall average and thus he may lose the opportunity to continue studying in the United States.

E. The foreign student is oriented to very traditional teaching and learning patterns and finds class participation and activity difficult to adapt to.

F. The foreign student relies too much on rote memory.

G. The foreign student tends to be somewhat timid in the classroom.

4. Foreign students in mathematically oriented courses seem to face the least of the difficulties which are listed above. On the other hand, the more dependent a course is on writing and speaking kills, the more of the listed problems a foreign student faces.

67 — **Malak, Mohammad Ali**

The Relationship between certain piagetian tasks & aritfmetic ability of the first grade Saudi male children. Northern Colorado Univ., 1976.
ix, 86 p.

Purpose of the Study

The purpose of this study was (1) to investigate the responses of the first grade Saudi male children on certain Piagetian tasks, and (2) to determine the possible relationship of these responses,. taken individually and collectively, to the performance of children in arithmetics.

Conclusions

As a result of the analysis of the questionnaire the following conclusion were arrived at :

1. Faculty members' attitudes toward having foreign students in their classes are mostly of the positive nature. However, although some faculty members would prefer to have foreign students from certain regions or countries of the world and others do not like to have any foreign students, these attitudes do not influence the evaluation grading of foreign students.

2. Not all foreign students are the same. But those foreign students who are perceived by faculty members to be facing pressures or problems related to their being foreigners and from non-English-speaking countries are likely to be compensated by such faculty for the disadvantages resulting from those pressures or problems. Compensation efforts listed in the order of the intensity of their application are :

A. Leniency toward errors made in the usage of the English language.

B. Giving a grade of «Incomplete» or the equivalent to allow more time for completing the requirements.

C. Allowing more time to respond to examinations or to «turn in» homework assignments.

D. The awarding of «good-will» grades.

E. Giving consideration to the educational preparation which the student needs for work in his country as opposed to that which an American student needs for work in the United States.

F. Giving oral examinations along with the regular class examinations.

3. Not all foreign students have problems and pressures. But, according to faculty perceptions, those who do are most likely facing the following problems and pressures listed in the order of being most perceived to being least perceived :

in perspective with his own expectations and goals, the result could be a more orderly pattern of performance.

3. The foreign student advisor will also understand the functioning of foreign students in terms of faculty perceptions. Through better understanding of the learning process of foreign students, the foreign student advisor's counseling role will be more effective.
4. Faculty perceptions should be considered in deciding whether and how the initial orientation of foreign students ought to be improved.

Procedures

In order to gather data for this study was developed and revised on the basis of a pilot study. The final form of the questionnaire consisted of seventy items as categories of ten questions. This questionnaire was sent to 1,200 faculty members in Education, Humanities, Social Science, Business and Administration, Engineering, Natural Science, and Physical Science. Those faculty members were randomly chosen six universities each of which represent one of the six regions of the United States, and each was enrolling 500 or more foreign students.

Survey Results

Eighty-five of the questionnaires sent to the 1,200 faculty members were returned because the addressess were no longer at those institutions. Thus the resulting sample consists of 1,115 faculty members. The questionnaire received by the 1,115 faculty members elicited responsefrom 653 or 58.57 percent. The responses of the respondents reflected their experience with foreign students from amost all parts of the world but in different proportions.

Review of the Literature

Literature pertinent to a study such as this was reviewed. Years from 1945 to the present were represented in the literature reviewed and in Appendix B. However, because no study in the area of foreign students which bases its finding on the perceptions of faculty members could be found, the literature reviewed has no direct link to this study.

EDUCATION GENERAL

66 — **Kadi, Sobhi Abdulhafeez**

Determination and analysis of the bases used by faculty to evalute and grade the performance of foreign students in American University. University of Denver, 1976.
x, 179 p.

The Problem

Considering the unique problems common to most foreign students in American institutions of higher education, the faculty member is likely to compensate them for those problems by means of exclusive provisions.

The problem was to investigate the existence and nature of factors which contribute to evaluating and grading the performance of foreign students in American universities from a faculty point of view.

Purpose of the Study

The purpose of this study consists of four parts :

1. To determine from a sample of faculty members if a differential treatment is used with foreign students either prior to or at the time of «grading» their performance.

2. To determine the criteria used for the differential treatment.

3. To determine the nature of and the reasons for the differential treatment.

4. To determine if and how the differential treatment varies from one academic discipline to another.

Significance of the Study

1. Determining the basis for grading foreign students which would be helpful when the interpretation of grades is essential.

2. Foreign students will understand what their teachers expect from them. When the student places the expectations of his teachers



EDUCATION



was used to examine whether there were significant differences among the three industries selected with relationship to management tool utilization of the firms according to the size of the firm in each product area, the type of product, and the size of the firms in the three types of industry.

Findings and Conclusions

1. There is no significant difference in utilization of management tools in each type of industry according to size within that industry classification.

2. There is no significant difference in management tool utilization in the three industries, except for operations budget.

3. There is no significant difference in management tool utilization among the three industries, when compared by same degree of size.

4. Under the food industry and its use of management tools, the tools used most prevalently are : inventory control, product pricing, make or buy decision, cost data for choice, and financial ratio.

5. Under the apparel industry and its utilization of management tools, those tools used most prevalently are : inventory control, product pricing, make or buy decision, cost data for choice, and financial ratio.

6. Under the lumber and wood industry and its use of management tools, the tools used most prevalently are : inventory control, product pricing, cost-volume-profit analysis, cost data for choice, and make or buy decision.

7. Linear programming has the least percentage of utilization in the three industries.

65 — **Najmedin, Tajeddin Amin**
Utilization of decision making tools in small manufacturing firms in the state of Colorado. University of Northern Colorado, 1975.
xv, 351 p., tab.

The purpose of this study was to investigate the extent to which small businesses use management tools in decision making situations. The study was limited to those business listed in the **Directory of Colorado Manufacturers, 1974-75,** in the food, apparel, and lumber and wood products industries.

1. What are the management problems of small firms which manufacture food products, apparel, and lumber and wood products. One main question in this area is : **Do these small manufacturing firms utilize management tools in their operation** and to what extent ?

2. To what extent are management tools used in the management decision process ? One main questinon in this area is : **Whai is the relationship between the size of the firm and the degree to which such management tools are utilized in its operation ?**

3. What is the differential in such tool utilization among firms in relationship to their size. One main question in this area is : Considering all types of production, **do firms of small size utilize management tools to the same degree ?**

4. What situations and background factors contribute to the absence of utilization of such tools among firms of ali production lines. One main question in this area is : **What are the background factors, both firm and managerial, which contribute to the absence of such tool utilization ?**

From the apparel industry, fifty (49 percent) completed questionnaires were returned. From the lumber and wood products industry, 89 (45.4 percent) completed questionnaires were returned. In these two industry categories, only follow-up letter was sent since it was determined that the sampling in those two areas was adequate.

The chi-square test of independence at the .05 level of significance

ble for small samples, data were analyzed from which the following conclusions were derived.

Findings. The analysis of the data produced evidence that supports the main hypotheses of the study except the one concerning departmental complexity. The degree of job routineness, while significantly related to IPB, is found to play a dampening role in the relation of cognitive style and job environment variables to IPB. When the role of routine is controlled, it is consistently observed that the relations of these variables to IPB increase in significance. The IPB-departmental complexity relationship, however, is found largely mediated by cognitive style.

The assessment of some background factors of participating managers yielded useful results pertinent to managerial effectivenss. The integrative style is noted to relate strongly to longevity of service whereas the hierarchic and mixed tendencies correlate better with management level. Managers' job satisfaction is found to vary directly with IPB and autonomy, and negatively with information load and job routineness.

Implication. The findings bear significant implications to management «contingency» theory in two ways : (1) the routinization of managerial job technology not only inhibits behavioral complexity but also mitigates the effect of the other job environment dimensions, and (2) behavioral complexity of the managerial incumbent is a function of his job and organizational complexity. To management practice, the results offer new alternatives to jub and organization design and development : (1) man-job cognitive fitness can be established by a simultaneous concern with and adequate assessment of job characteristics and the behavioral capabilities of the job incumbent that go beyond the traditional means of hiring and developing managers ; (2) manorganization fitness is also attainable through the analysis of behavioral, job, and organizational complexity factors that are most critical to the retention, growth, and satisfaction of managers which are viewed as possible means for enhancing organizational effectiveness ; and (3) the analysis of information need and information consuming behavior of managers is a prerequisite to the development and/or betterment of a management information system in an organization.

MANAGEMENT

64 — **Alawi, Hussein Mohammed Ali.**
Cognitive, task, and Organizational complexities in relation to information processing behavior of Business managers.
University of Southern California, 1973.

Problem. The analysis of decision making behavior in organizations has recently received fragmented attention. While some authorities in the field concern themselves with the process underlying individual behavior, others deal with the organization as a decision making system and relate its structure and functions to certain qualities of the external environment. This study provides an alternate prespective in which decision making is treated in a multidimensional framework whereby the behavior of the managerial incumbent, the characteristics of his job, and those of the organization are simulaneously considered within the context of the theory of cognitive complexity.

Objective. The study aims at developing and empirically testing a conceptual schema in which the complexity of decision making or information processing behavior (IPB) of managers is analyzed and predicted via three explanatory constructs : (a) cognitive style complexity, which is represented by hierarchic, integrative, and mixed tendencies that are hypothesized to relate positively and directly to IPB ; (b) job environment complexity, which is defined in terms of the degree of job routineness, time pressure, autonomy, and information load ; it is hypothesized that IPB varies negatively with routine and time pressure, positively with autonomy, and curvilinearly with information load ; and (c) system and departmental complexity which are postulated to be a positive direct function of IPB.

Methodology. On a voluntary basis, 104 business managers of various industrial backgrounds participated in the study. Data were collected through a combination of personal interviews and distributed questionnaires. One hundred and forty-four information items were collected and summarized for each respondent. Using a stepwise multiple regression technique based on product moment and partial correlation methods, and several nonparametic statistical tests suita-

to the United States in the late nineteenth century to look after the British capital.

Technical aid to underdeveloped countries also received wide attention though its advocates did not emphasize as much its need for accounting as was the case with capital.

Other underdeveloped countries do not need capital as much as they need management skills. Thus there was, and still is, emphasis on management as a key factor in economic development ingredient. Presumably, comprehensive coverage of the subject of management for accountants aroused their attention to accounting there. For instance, Dr. Seidler published a comprehensive study on the function of accounting in economic development and used Turkey as a case study. He authored the study after spending some time in Turkey as a visiting assistant professor.

In summary, discussion of the role of accounting in economic development took a piecemeal approach at the beginning. This was a result of subordinating the discussion of accounting to proposed economic solutions to causes of underdevelopment. In the 1960's, too few accountants demonstrated interest in accounting for economic development and started publishing on the subject.



sistent, and uniform, and (2) provides sufficient disclosure and environmental information.

Procedures of the Survey

The conclusions of this study were based on the results of four questionnaires surveys. The first conclusions were extracted from the analysis of completed questionnaires in a mail survey to petroleum companies. A total of 310 questionnaires were mailed to petroleum companies in the United States, and 64 were mailed to companies in Canada and overseas. Of the total of 119 responses, 106 were from crude oil producing companies (82 in the United States and 24 in Canada), 11 were from companies not engaged directly in crude oil-production (but who answered the survey anyway), and two were European international companies. The latter two were included in a separate analysis.

A computer program was constructed to produce the frequency distribution for each question,and subroutining was called for to analyze every question vertically and horizontally. Some questions were analyzed according to five operational levels and three maturity levels of the companies. Finally, the results of some questions were compared with the results of others.

The research was augmented by the results of the second survey. A total of 38 answers were received from 157 questionnaires mailed to the auditors of the oil companies who participated in the survey. This questionnaire was similar to that used in the company survey. A computer analysis similar to that applied with the company results was used here except with differnt groupings.

Thirdly, special questionnaires were sent to the governments of eleven selected oil producing countries. Seven Middle Eastern governments responded with their opinions about the accounting methods they followed and about whether they support one method over others.

Finally, the conclusions are supported by answers from 13 representatives of professional organizations (out of 22 contacted) concerning the accounting method they advocate.

Secondly, there is the **full-costing method.** The number of companies that used the full-costing method increased during 1959-1974 from 0% to 62% in the United States. This method capitalizes all costs incurred to establish commercially productive wells, whether or not the costs are applicable to an actual discovery reserves. A limitation usually placed on the capitalized costs is that they cannot exceed the fair market value of the discovered reserves. These costs are amortized against income through the production of aggregate reserves. Under this method, all costs are considered to be necessary and unavoidable in the process of finding petroleum reserves.

The comparison between the two accounting methods centers around two main points : the cost center and prediscovery costs First, disagreement concerning the cost center is primarily with regard to the size of the cost center. Size affects matching in two ways : the amount of costs associated with the cost center, and the amount of amortization computed on capitalzed costs. The cost center is necessary to match discovery and development costs with the revenues realized from sales; besides, results must be consistent and logical. Supporters of the conventional costing method favor the geological unit (either the lease or the field)as the best cost center, while advocates of the full-costing method usually select a broader base than the field, often using a geographical unit such as the country-by country property base.

Secondly, prediscovery costs are costs which are unique to the petroleum industry. They include geological and geophysical costs, property acquisition costs, carrying costs, and unsuccessful exploration and development costs. The disagreement between the followers of the two accounting methods arises mainly with regard to whether all, some, or none of such costs should be capitalized and amortized to income as the related reserves are produced and sold. The full-costing method capitalizes all these costs, without distinction between productive or unproductive activities, on the basis that all these costs are part of total reserves found. On the other hand, the conventional costing method expenses either all these costs or only that part which did not produce significant discovery. Users of the conventional costing method cannot accept the notion that unproductive costs in a particular area are related to reserves discovered in a distant geographic area.

The advocates of each method try to prove that the accounting method they follow leads to reporting which (1) is appropriate, con-





4. **Data Processing Programs**

There is a need for more and better college programs that prepare teachers to teach business electronic data processing.

5. **Comparison of Ratings**

a) At each educational level there was no significant difference between teachers' rating and administrators, ratings, and between the inexperienced and the experienced participants' ratings of the technical competencies.

b) There was significant difference among teachers at the three educational levels and among administrators at the three educational levels in rating the technical competencies.

61 — Taher, Abdulhady Hassan
Income determination in the international petroleum Industry
California University, 1964.
xvi, 227 p.

The accounting problems of the petroleum industry have withstood a satisfactory solution for many decades. The uncertainties associated with exploration for oil deposits make it difficult to account adequately for the heavy outlays necessary to find the oil. The development of a discovered field is less uncertain only by a matter of degree, because the actual extent of the deposit cannot be known accurately in advanc. The processing of the oil in a refinery involves the use of known quantities of a basic raw material, but crude oil is a complex hydrocarbon which also contains chemical impurities of different sorts. As a result several joint products emerge from the one basic raw material, and the awesome problem of allocating joint costs in some rational manner has to be faced. Add to these technical problems the social and political issues created by the international operation of many large oil companies and it becomes easy to see why the accounting problems have withstood satisfactory solution for so long.

The present study injects a fresh point of view into the problem. It does so by refusing to be bound by the customary limits of past discussions of the same type of problem. At the broadest level,

and junior college teachers rated Office Management, Typing, and Auditing as needed.

c) Only high school teachers rated Office Machines and Calculating Machines as additional items needed.

2. **Data Processing Knowledges and Skills :**

a) Items that were rated as needed by business electronic data processing teachers at the three educational levels are :

COBOL, Computer Input and Output Media and Devices, Computer Storage Devices, Systems Analysis, FORTRAN, Central Processing Unit, Flow Charting, Batch Processing, Time Sharing, BASIC, Canned Programs, Card Layout and Design Operate Key Punch, Internal Data Representation, Forms Design, Operate Terminal, Computer Memory Sizes, PL/1, Work Load Evaluation, RPG, History of Data Processing, and History of Computers.

b) At the high school level and the junior college level, items that were rated as needed by business electronic data processing teachers in addition to the items mentioned in part «a» are : Operate Computer, Operate Sorter, Operate Verifier, and Assembly Language.

c) Machine Language was rated to be needed by business electronic data processing teachers at the high school level only. Even though Computer Languages were rated among the items needed by business electronic data processing teachers at the high school level, the means of ratings of those languages (excluding COBOL) were the lowest of the needed items.

3. **Work Experience**

a) No work experience of any type or length was rated to be needed by business electronic data processing teachers at the high school level.

b) From 7-12 months of work experience as System Analyst (Business Applications) and Programmer (Business) was rated to be needed by business electronic data processing teachers at the junior college and the four-year college levels.





agerial posts surpasses attempts among domain and technical core functions.

8) At the middle level of management, efforts to integrate jobs at the technical core exceed those to absorb nationals into domain and buffering functions.

9) At management's top, integration increasing over time accelerates significantly when the host government is permitted to participate in firm's ownership.

10) Modest efforts to integrate convince large numbers of nationals to leave multinational firms for local businesses ; attrition of multinationals' personal is spurred when opportunities in local firms grow concurrently (such growth acts as a mediating variable).

11) American and Saudi managers working for oil firms agree significantly in their evaluation of the quality and quantity of external environmental variables in Saudi Arabia.

12) These American and Saudi managers differ greatly in their estimation of the hindrance posed by constrating external variables.

13) The same managers also perceived internal, organisational variables quite differently; they could agree neither on the quality and quantity of these influences nor that these influences do in fact hinder the process of diffusing managerial technology.

The dissertations' thesis that westren managerial skills and philosophy are accessible to nationals of developing states represents a news view and marks a new route of inquiry for future research.

59 — **Al-Sabab, Ahmed Abdullah Al-Ali.**
An inquiry into the development of the current planning institutions for economic and social development in Saudi Arabia. To those who are dedicated to education, progress, and welfare if the Kingdom of Saudi Arabia. University of New York, 1973.
244 p.

Development planning in Saudi Arabia has tended to concentrate on the problems of selecting major policies. It usually has ended with a plan a set of major decisions. Unfortunately, it is becoming in-

firms. The third describes the transfer of management which occurs with nationals'acquisition of managerial attitude and lore. The hypothetical relationship generated by the models underwent tests against analysis of : data collected in questionnaires distributer among American and Saudi managers working for four multinational oil companies settled in Saudi Arabia, data elicited from managers of local business, the study's control group ; and records preserved in the oil firms' archives which break down personnal into national groups. The scale to measure managerial attitudes was tested for Internal consistency and reliability.

The study has determined the following :

1) The scale using a priori pairing and patterning of relationships measures attitudes reliable and usefully only when revised for the particular case at issue.

2) The attitudes of American and Saudi managers working for oil firms differ from more than they coincide with the views expressed by Saudis managing local business ; Saudi managers employed by oil companies share more view with American manager-colleagues than with studies managing local firms.

3) Generally, Saudi managers working for oil firms and characterized by the following circumstances reported attitudes closer to American managers' views than any other group this study sampled : they had been given on-the-job and managerial training ; they had attended univeristies they worked at management's middle level ; they were 20 to 30 years old and had eleven to fifteen of business experience.

4) Th higher the rank of management, the smaller the effort firms make to integrate nationals into it.

5) The host government's indirect participation in small firms' planfning forms a considerable external inducement to integration.

6) Internal inducement to deduce to cost of an unprofitable venture produces sudden, marked action to integrate Saudi nationals into managerial positions.

7) The strong effort buffering functions make to integrate top man-





BUSINESS ADMINISTRATION

56 — **Jishi, Jameel Abdullah.**
A Systems approach to the selection of Industrial development projects in the less developed countries. University of Pittsburgh, 1974.
XV, 333 p.

This dissertation deals with the problem of formulating a project selection method which, as a part of a general planning efforts, can be used by a government agency, in a devloping country, to select the industrial (production oriented) projects suitable for implementation in a given planning period. Such a selection method needs to allow for the individual country's needs and orientation, and account for both private and public interests. Through the use of the systems approach, a planning framework is developed which puts the selection problem into perspective as part of a three phase project development process consisting of (a) identification, (b) selection, and (c) implementation.

To conduct the selection process a sequential decision-making procedure is structured. This requires the application of a private interest criterion and a public interest criterion on the set identified projects which are assumed to have undergone a pre-feasibility analysis. Traditional accounting procedures can be used to develop the private interest criterion. Mathematical programming is suggested for the development of a public interest criterion. This results in the development of what called the Public Interest Criterion Model (PICM). The systems approach is utilized in identifying possible objectives and constraints to be used in the PICM, However, each country is expected to determine its own objectives and constraints through a survey, or through the use of the Delphi technique, guided by a systems model developed in the dissertation. This model is based on the concept of an inner system, a competitive system, and an environmental system-terminology which has been borrowed from the management literature.

Utility concepts are utilized in the construction of the objective function for the PICM. Individual utility scales are first developed.

grams represent a broad classification for all identified programs. In particular, the subject-area programs are proposed because they represent a system which is more practical and less costly than the grade-level system that is currently used in Saudi Arabia. This is because the latter system requires a student to pass all courses in a particular grade level before being promoted to the next grade level. In the proposed system, however, students repeat only those courses that they do not pass, and are promoted to the next grade level in all other courses.

The proposed PBM emphasizes the inclusion of three different kinds of quantitative information : quantitative objectives, quantitative outputs, and the cost of achieving these outputs and objectives. The quantitative objectives and outputs for the Saudi elementary education system are defined in terms of teaching hours. The estimated cost of achieving these objectives and outputs is assumed to be available or calculable from the proposed object and program accounts, the subjective judgement of knowledgeable persons, or both.

Qualitative information has been excluded from the proposed PBM because it is difficult to identify it in a general model. Also, the current norm is to state the contents of the budget in quantitative (especially monetary) terms. Therefore, the exclusion of quantitative information from the PBM should not even imply that this kind of information is irrelevant to decision-making in real-life situations.

Finally, it is recognized that implementation of the proposed PSM and PBM in the Saudi Arabian elementary education system is not easy nor impossible. Considerable effort and enough time are required to achieve a statisfactory degree of success in implementing the proposed budgeting system. Specificallay, obstacles such as resistance to change and shortage of qualified personnel must be identified, analyzed, and carefully considered.



examines the General Personnel Bureau with respect to its structures, functions, organizations and performance. The third objective of this study is to examine the impact of the present economic boom on the civil service. It is the assumption of the author that the present economic boom has hindered the capabilities of the personnel system to cope with development and change effectively.

The last objective of the research is to contribute to better understanding and better explanation in comparative administration. Through the analysis and evaluation of the Saudi Arabian Civil Service as well as the introduction of certain approaches to the problems presented, the author hopes to shed some lights on the problems and difficulties facing administrators in developing countries.

The study is divided into three main parts. Part one is concerned with reviewing the literature on comparative public administration with particular emphasis on administrative development in the new nations. It consists of one chapter namely Chapter II. Part two of the study is historical in nature. It includes three chapters and it critically traces the personnel system to its western origin.

The third part analyzes critically the present civii service of Saudi Arabia. It includes four chapters, i.e., chapters six through nine. This part introduces also certain comprehensive approaches to the shortcomings of the personnel system.

The primary source of data for this study is based (1) the available published material on Saudi Arabia, (2) government documents, reports, and publications on the civil service of Saudi Arabia, (3) interviews with political officials and government managers in the country, and (4) literature on administrative development in changing societies.

Findings : The data examined in this research confirmed the basic hypotheses of the author.

critical variable influencing the capacity of developing nations to bring about economic and social change.

The main purpose of this dissertation is to contribute to this understanding of the process through an analysis and an assessment of the institution building process of the Institute of Public Administration in Saudi Arabia (IPA) which has been in existence since 1961.

The analysis will focus on two main issues : first, the achievements of the IPA since its establishment, and second, the process through which the IPA its administrative capability to carry out its functions. In dealing with these two main issues, an attempt will be made to : a) assess the extent to which IPA has become institutionalized ; and b) understand the causal relations which exist between the organizational elements during a given period, and achievement during that period. This means answering the question of why IPA was able to carry out certain tasks while it ignored others ; c) evaluate what impact IPA has on administrative development in Saudi Arabia ; and d) suggest new policies and programs to increase its administrative capability to carry out its functions in the future.

As a by-product of this study, the study endeavors to contribute to the development of the institution building model developed by the Inter-University Research Program in Institution Building.

54 — **Tawati, Ahmed Mohamed**
The Civil Service of Saudi Arabia ; problems & prospects. West Virginia Univ. 1976.

This is a critical study of the Civil Service of Saudi Arabia. It is an attempt to evaluate objectively the role of the public personnel system in the Saudi society. The study has four interrelated objectives. The first is to provide critical analysis of the evolution of the personnel administration in the country since the emergence of modern Saudi Arabia to the present time. The assumption here is that the basic pattern of the present Saudi Arabian Civil Service System is an imitative rather than an indigenous one. It has its origin in western culture. Thus the system is traced to its original western model.

The second goal of the study is to provide a critical analysis of the various functions of the present personnel system. Hence, the study

encountered by the research student are stated. Part One is a review of the historical divisions of the area occupied at present by the Saudi state. Emphasis is laid on the traditional geographical and administrative divisions (Chapter One); the territorial administrative divisions during Egyptian and Ottoman rule (Chapter Two) ; and on the socio-political entities of the nineteenth and early twentieth centuries (Chapter Three).

Part Two is an examination of the authority and distribution of Saudi Arabia administrative areas. The development of central government and provincial organisations is discussed (Chapter Four).

The authority, evolution and geographical distribution of the Saudi provinces, and the territorial administrative units of selected central government ministries are examined in Chapter Five, Six and Seven.

The third and final part is a detailed is a detailed and critical exmination of one province (al-Bahah). The evolution of the province in time and space is discussed (Chapter Eight) and followed by a geographical analysis of the nature and base of district delimitation and administration (Chapter Nine).

Finally, the thesis ends with some concluding remarks, containing the most significant and broad findings of the study.

53 — **Al-Tawail, Mohammed Abdulrahman.**
Institute of Public administration in Saudi Arabia ; a case study in institution building. University of Pittisburgh, 1974.
viii, 366 36 p.

The main constituents of the administrative problem in developing countries are the ever increasing demand for managerial skills, the limited supply of these skills, and the low administrative effectiveness. In most of these countries, an institute of public administration is one of the organizations created to deal with this problem. However, these countries have discovered that there is a wide gap between the legal creation of an institute of public administration and the building of an effective institution which can actually carry out the functions assigned to it. The need exist to understand more throughly the process whereby effective institutes of public administration are built, since public administration is likely to be the most

syetems established in more developed countries. Technical assistance, in a general sense, can be viewed as a vehicle for transferring knowledge, skills techniques, and systems. However, the mission of technical assistance should not be confined to transfer without taking into consideration the social and cultural setting of the recipient country.

This study focuses on the United States technical assistance program in public administration in Iran which, at one time, was the largest of its kind in any country. The effort to establish program budget and position classification in Iran is the main subject of this study which attempts to explore the feasibility of transferring administrative techniques from a more developed to a less developed country. A technique in personnel administration may be more difficult to transfer than a budget technique because of its deep rooting in social and cultural values.

The effort to establish program budget was successful insofar as the structure of the Iranian budget is now based on program classification. On the other hand, the concept of position classification met greater resistance. Although, it is embodied in the recent civil service law of 1966, there are provisions in the law which contradict the position classification requirements. This is attributable to the fact that Iranian culture emphasizes personal status and rank, and such emphasis may run counter to principles of position classification. The study does not conclude that establishing position classification in Iran is a hopeless case, but it may take many years in which some changes in cultural and social values may occur. Such changes may make position classification systems more acceptable in Iran.

52 — **Saleh, Nassir A.**
The Emergence of Saudi Arabian administrative areas : a study in political geography. Durham University, 1975.
xii, 369 p., illus.

The present study is the first effort at tracing the evolution and examining the factors involved in the emergence and delimitation of the territorial administrative divisions of the Kingdom of Saudi Arabia.

In the General Introduction, the geographical approach is distinguished, and data scources, their limitations and the difficulties

and manpower development in Saudi Arabia. In it, there is an analysis and an interpretation of the country's social, cultural, and political environment. Chapter II provides a brief background on the emergence of Saudi Arabia as a new state. In addition, it deals with the traditions and customs that hinder development in Saudi Arabia. These influences include attitudes towards manual work, the central government, modern education, girls' education, health, housing, comprehensive planning and secular affairs. This chapter then deals with the recent reorganization structure and planning mechanism of the government. Chapter III deals with the educational system in Saudi Arabia and traces it to its original Western model. Higher education, because it is a mirror of the education system and manpower development in the country, is dealt with separately in Chapter IV.

Part Two, consisting of Chapters V and VI, analyzes the first Five-Year Master Plan as well as the new educational policy of the government.

Part Three, which is the concluding chapter, suggest an alternative model to the present educational system. The model aims specifically at fulfilling Saudi Arabia's education and manpower needs as determined by its cultural and historical heritage, within the limits set by its natural and human resources.

51 — **Osman, Osama Abdul-Rahman**
The Transferability of non-indigenous administrative techniques as an approach to improve administration in a developing country ; the experience of American technical assistance in public administration to Iran. American University, 1970.

Bureaucracy has a vital role in various kinds of tranformation which less developed countries are experiencing. But the capabilities of bureaucracy in most of these countries falls far short of fulfilling its role. Therefore, administrative reform is often recognized as an integral part of developmental goals. Improvement in public administration is very essential to administer development programs effectively and efficiently and, thus, public administration has become gradually an important element in various technical assistance programs.

In their drive to improve their administrative systems the less developed countries may be tempted, or pressured, to adopt modern

As a preiude to the major assumptions of the study, the second section is an elaborative description of the relationship between Saudi Arabian bureaucracy and its environment. The third section of the Introduction is the major assumptions and hypotheses. Finally, the fourth is a section on the research methodology.

Part One, which includes four chapters, deals with the environmental conditions of the bureaucracy. In the first chapter our concern is with the geo-historical institutions and sources of impact upon the present administrative system. Chapter Two deals with the social institutions and value-system in an attempt to identify the social bases of the bureaucratic behavior. The third chapter deals with the economic system and the potential role of the public bureaucracy in the allocation of the over-all economic resources. Chapter Four describes the political system in an attempt to identify the sources of bureaucratic power in the public policy making.

Part Two, which also contains four chapters, deals with the bureaucratic characteristics, institutions, laws, attitudes and behavior. The purpose of this part is to show the manifestation of the environmental dynamics in the bureaucratic structure and performance. Chapter Five deals with bureaucratic organization and system of control. Chapter Six emphasizes the background of the top bureaucrats and their perceptions of and attitudes toward important admimistrative social and developmental issues. Chapter Seven deals with the impact of the over-all environment upon certain features of bureaucratic procedural modes and behavior.

50 — **Hammad, Mohamed A.**
The Educational system and planning for manpower development in Saudi Arabia. Indiana University, 1973.
357 p. diagm.

The present education and manpower development programs in Saudi Arabia have failed to prepare the country to deal intelligently with Western technological innovations. An uncritical adoption of Western educational models rather than an adaptation of these models within the Saudi heritage is seen as a principal cause of this failure.

The dessertation is comprised of three parts. Part One deals with the foundation or the general framework of the system of education

PUBLIC ADMINISTRATION

49 — **Al-Awaji, Ibrahim Mohamed.**
Bureaucracy and Society in Saudi Arabia. The University of Virginia, 1971.
xi, 292 p.

This is a critical study of the public bureaucracy in Saudi Arabia in relation with its historical, social, economic, and political environments. The main objectives of the study are two. Its first purpose is to provide a critical analysis of the public bureaucracy of Saudi Arabia not as an autonomous institution but as a sub-system of a rather complex socio-economic system. Hence, the major objective of the study is to thoroughly examine the bureaucratic institutions, set of rules, procedures and patterns of behavior in light of the impact of both past and present environmental factors. Consequently, it involves a study of the entire social system as a means of understanding the bureaucratic phenomenon at work. The other objective of the study is related to the value of its contribution to the development of a more empirical research in the field of comparative administration in particular and comparative politics in general. To this effect, we should point out that the development of a reliable study of comparative administration depends, among other things, upon the availability of empirical data on individual administrative systems throughout the world. Therefore, it is hoped here that this particular study can contribute to the realization of such an end. This is perhaps of special significance to such a purpose particularly when we consider the fact that Saudi Arabia in general and its administrative system in particular have been exposed to limited explorations by students of modern comparative studies.

The study is based on several sources which are explained in a subsequent section. However, the primary source is the result of a questionnaire administered during the summer of 1970 to 1971 Saudi Arabian officials, 42 of whom are studying in the United States.

The study is composed of the Introduction and two parts each of which includes four chapters. In addition to this statement, the Introduction includes four other sections. The first is a theoretical review of the study of comparative administration with a special emphasis on the most related models such as Fred W. Riggs' Sala Model.

tirely different from the Aryan family. In the case of the Holy Quran, it is not merely an Arabic book, but attains a glorious standard of language that makes it impossible to be translated. According to Professor Gibb **(Modern Trends In Islam, p. 4)** :

> An English translation of the Quran must employ precise and often arbitrary terms for the many - faceted and jewel-like phrases of the Arabic ; and the more literal it is, the grayer and more colourless it must be.

In legal discussion the difficulty of translation is compounded by the fact that, in Muslim terminology, a whole legal concept is condensed into a single word, and therefore cannot correctly be literally translated, a fact which makes transliteration extremely indispensable. In his foreword to the **Law in the Middle East** (p. V) Justice Robert Jackson has this to say with regard to the conveying of legal ideas from one language to another,

> In course of time it is the custom that legal expressions come to carry a whole bundle of ideas to the initiate as do our phrases : «due process of law,» «equity jurisprudence,» «trial by jury,» or «judicial review.» It appears to be true of many Islamic legal terms that they wrap volumes of meaning into a single word, which may be expounded to us, but we, not having the same concept in our law, have no legal terms to fit it.

Despite the linguistic difficulties that have burdened this study throughout, the writer has consulted all available original sources and has tried his best to take an objective and dispassionate view. In order to assess the concepts under view the guiding principle was the critical analysis.

48 — **Munifi, Abdullah Abdul Aziz**
The Islamic constitutional theory. University of Virginia, 1973, 622 p.

The constitutional issue constitutes a part of the big question agitating the minds of the contemporary Muslims. They are bothered with the lack of reconcilation between the ideals of Islam and their present state of decay and backwardness. Islam is a code of the regulating the spiritual as well as the temporal life of its followers. Since Islam does not recognize any compartmentalization of life, the Muslims were supposed to mould their life according to its teachings. From this proposition the question that presents itself is, whether the contemporary weakness and degradation of the Muslims is caused by the close adherence to the teachings of Islam as being a worn out creed, or by the divergence of the people from those teachings ? This question is partly answered by this study.

The desire of investigating the constitutional precepts of Islam was in my mind even before he has the opportunity to work in preparation for this study. Although this voracity grew more and more with the advance of the study, the writer cannot conceal the fact that during the course of research he found himself encouraged on some occasions and discouraged on others. Many hindrances have been faced. Great pains have been incurred in acquiring the original materials, not only because the needed informations was scattered over a large number of voluminous works composed in a classical digested style which makes research more difficult, but also because the rarity of these sources, even in most of the libraries in the Muslim World. The writer will never forget the effort made in obtaining Al-Baqillani's **Kitab Al-Tamhid.** In this case, after more than four months of correspondence with various book stores and friends in the Middle East, the book was obtained. However, the writer's frustration was greater than his joy of receiving the book when he discovered that only that chapter which deals with the Imamah issue, was omitted from this particular edition (Beirut, 1957).

The linguistic difficulty in rendering some of the original authorities in English can not be understimated. The reason is that some of those authorities can be explained in modern Arabic, itself, but with some difficulty, not to mention rendering them in English, due to the fact that the Arabic language belongs to a linguistic family en-

The second part of this thesis contains an historical study of the development of the Islamic administration of justice from the Prophet's day until the end of the Umayyad period. This part consists of four chapters as follows :

The first chapter is a study of the legal custom and judiciary system during the pre-Islamic period. This study of the Arabian tribal system will serve to give us the background to the Islamic administration of justice.

The second chapter is concerned with the judiciary system of the Prophet. It looks at the change that had taken place in the nature of authority in the Arabian Society, and examines the Prophet's judicial authority and how it differed from the practice of the pre-Islamic period.

The third chapter contains a study of the judiciary system after the death of the Prophet i.e. during the early caliphate. It is a study of the caliph's authority in judicial matters and how he delegated his authority in this field to subordinate officials, and in consequence gave birth to the Islamic system of administration of justice.

The fourth chapter is a study of the administration of justice during the Umayyad period : how the Umayyads developed this institution, and how it acquired its essential festures during this period and the role played by the judge. It will also at the judge, his appointment and position in the Umayyad administration and how his function and the view of his qualifications developed during the Umayyad period.

The conclusion reached in this thesis is that the scholars started off in opposition to the existing practice, but their conclusions were the same in many cases as the actual practice. Thus practice largely determined the theory. Sometimes the scholars looked at this practic with critical eyes, accepted parts of it and modified others, or even rejected parts as they formulated their theory in opposition to the Umayyad practice. This in itself did not free their theory from being the natural result of historical processes of development in the administration of justice. Without this historical development in the administration, the theory could not have been formulated.

ISLAMIC LAW

47 — **Al Humaidan, Humaidan Abdulllah.**
The Islamic theory of the administration of justice, al-Qada and the early practice of this institution up to the end of the Umayyad period (132 A.H./750 A.D.) The University of St. Andrews, 1973.
326 p.

In order to understand Islamic legal theory it is important that we study it in the light of the practice which preceded its formation. By studying the relation between the later theory and the practice during the early period of Islam we will he able to determine the influences on this theory in its background and development.

The present thesis is an attempt to answer a question about this relation between the legal theory and the preceding ractice in one branch of the legal theory. This branch is the Islamic legal theory of the administration of justice **al-Qada**. The question posed in the thesis is this : did the theory of the administration in the second and third centuries A.H. express the naural historical development of the Islamic practice of this institution from the time of its introduction until the end of the Umayyad period (when Islamic institutions began to be analysed and discussed) or, on the other hand did Muslim scholars construct the theory in opposition to the actual practice, thereby avoiding any influence from that practice.

The question will obviously give rise to some further questions about the legal theory of Muslim scholars and its precise character in this branch of the law Questions about the practice of the Islamic administration of Justice.

The first part of this thesis deals with the theory of Muslim scholars by means of a descriptive study. This part also has ben divided into eight small chapters, each of which deals with a particular aspect of this theory ; the appointment of the judge and his dismissal ; his qualifications and functions, the judge's conduct of the court, his status and his decisions ; the organization of the court and its servants.

vestor must identify themselves with the interests of the countries from which they derive their profit. Furthermore, the industrialized nations must recognize the fact that their prosperity is linked to the prosperity of the raw-material producing nations. Hence, they should not only restrain the forces of inflation in their economies, but correlate the price paid for imported raw-materials with the costs of their exported goods. At the same time, host nations should recognize the investor's need for reasonable investment return and stability.

cessions with member states of Organization of Petroleum Exporting Countries (OPEC) were granted while they were in a condition of economic weakness, technical ignorance and the majority were under the political domination of outside powers. The concessions did not provide for justifiable readjustment and modification. The oil companies have understandably resisted the demads for drastic modification. To maintain the status quo, they sought help from «international law» and other carefully selected legal principles. In addition, many of the oil companies appear to have acquired overlapping intersets in most of the traditional concessions. As a result, the companies often formulated and maintained identical strategies in dealing with their individual host countries. This united approach forced the host countries to establish a united front of their own OPEC following the companies two unilateral price cuts. OPEC members worked together to readjust their concessions, and, along with other raw-material producing nations, to reassert other, competing principles of international law through the United Nations General Assembly. While international oil prices did not rise from 1960 until February, 1971, a steady inflation was growing in the industrialized nations. In addition, fluctuation of the major world currencies continued. These two factors through the years deflated the purchasing power of the oil producing countries, and became justification for recent increases in the posted prices of crude oil.

The question which requires examination is what are the legal grounds for contractual readjustments demanded by the host countries. The terms of the concessions typically run for a term of 60 to 75 years. Because of the lack of economic and technical experience available to the host countries when they granted the concessions, they were at a great disadvantage. Thus, either under the concessionaires' own laws or those of the host countries, there are justifiable legal and equitable grounds for contractual modifications.

To arrive at the conclusion that the contracts may be modified does not leave the parties to engage in lawless use of power. Rather, certain principles can be recognized. To maintain a long lasting relationship which would be meaningful to bath parties, the foreign in-

cation, economic affairs, and industry. The first concession was granted in 1933. Many terms in the early concession agreements have been subject to disagreement. In addition, many new problems have arisen.

Despite the lapse of almost forty years since the initial venture no coprehensive study has been made of the Saudi Arabian oil concession agreements. In view of the many complex problems assiciated with exploitation of natural resources through the concession system this study was undertaken.

The most remarkable feature revealed by the study is the relative peace and tranquility which has characterized government-concessionaire relationships over the last years. A large part of the credit must be given to the Islamic Sharia as applied in Saudi Arabia. It has proved flexible and has adapted easily to changing circumstances. However, a most important factor has been the attitude of the Saudi Arabian government one of cooperation and persuasion.

The thesis describes the geographical, political, social and economic factors which served to create an environment for the growth of this great industry. It then undertakes to examine the legal nature of the obligations covered by the Saudi Arabian oil concession agreements as well as the forums and legal principles which could be applied to enforce these obligations. The focus then shifts to a study of the major controversies of the past and those which appear to be in store for the future. Of the latter, special attention is given to the problems associated with exploitation of oil in the submarine areas. The thesis concludes with recommendations for short - and long-range actions to be taken the Saudi Arabian government.

46 — **Masuad, Khalid Abdullah**
Transnational oil concessions : reaction & evolution in the concept of public function and private obligation. University of Southern Methodist, 1974.
xi, 285 p.

The petroleum industry has a profound effect on both producing and consuming nations. The industry helps the producers to have available cash for their development and modernization, and the consumers to fuel and expand their economies. The traditional oil con-

bank's liability in accepting a false or forged document tendered according to this theory.

The relationship between the bank and the seller, whether in **bona fide** or **mala fide**, on the tender of forged documents has been discussed in the fourth chapter. It reaches the conclusion that the sellor warrants the genuineness of those documents which entitles the bank to recover the money paid on the strength of such forged documents. The bank's right of recovery will be based either on the unjustifiable enrichment theory under both the Scottish and the Middle East legal systmes, or as money had and received, money paid under a mistake, as far as the English legal system is concerned. The effect of the seller drawing a without recourse bill of exchange if it turns out that the bill of exchange and/or the shipping documents and/or the letter of credit is forged, is also discussed.

The last chapter is devoted to the relationship between the **bona fide** holder and the bank or the buyer on the tender of forged documents. It is established that the **bona fide** holder does not warrant the genuineness of the tendered documents. Therefore, the bank is not entitled to recover the money paid, or to withdraw its acceptance, on the strength of such forged documents in a question with the **bona fide** holder for value. The bank, according to some authorities, may recover if it detects the forgery while the holder is still present at the counter of the bank if the latter's position is not prejudiced by such recovery. A separate study has been made of the tender of a forged bill of exchange, forged shipping documents and a forged letter of credit, and the legal position of the **bona fide** holder for value on the tender of each of these different types of document, both in the common law and civil law legal systems.

45 — Madani, Mohamed O.
The Relationship between Saudi Arabian domestic law and international law : A study of the oil agreements with foreign companies. University of Washington, 1970.
50 p.

Saudi Arabia is the second largest oil producing country of the Middle East. Oil discoveries since 1938 have helped the government to raise the standard of living and to promote improvements in edu-

LAW

44 — **Diab, Hassan A.**
The Tender of forged documents under a banker's commercial credit. Glasgow University, 1972.
xxxiii, 434 p.

SUMMARY

The commercial docuentary credit is a very important device in the financing of the exportation and importation of goods. In spite of the important role of this device in international mercantile transactions, no extended study has been done to explain its aspects and the legal relationships existing between the parties concerned in terms of law. The present research is confined to an explanation of the legal consequences of forged documents tendered under commercial credits both in the British, and sometimes the American, common law legal systems on one hand, and the Middle East, and sometimes the French, Civil law legal systems on the other.

The first chapter is concerned to explain the legal nature of the seller-banker relationship, which is very important to ascertain the rights and duties of both the seller and the bank on the tender of forged bills of exchange shipping documents and letters of credit. The view is advanced that the obligatory offer theory is the best, if not the only one, which answers all the requirements of this relationship in the Scottish and Middle East legal systems. As far as the the English and American legal systems are concerned, and because of the difficulty of the doctrine of privity and consideration, the mercantile speciality theory is the only ground which can explain this relationship.

In the second chapter the crime of forgery is discussed in general, and its application to forged documents before and after the Forgery Act. 1913. Because of the apparent contradiction between the latter Act and Section 24 of the Bills of Exchange Act, 1882, an attempt has been made to reconcile these two Acts.

A study has bee nmade in the third chapter to explain the literal obligation theory in the commercial documentary credit and the



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tabulation and analysis of traffic records and statistics in Saudi Arabia and various countries, a comparison of the severity index, and a calculation of fatality rates. In addition, a content analysis of Islamic, educational and traffic safety philosophies were undertaken. Interviews with high ranking officials and policy makers in Saudi Arabia were conducted. A review of the past and present driver education and traffic safety education programs was undertaken in order to develop a comprehensive traffic safety education program for Saudi Arabia.

Major Findings

Islamic and educational philosophies advocated traffic safety education in the schools. It is one of the most needed programs for the survival of the individual which is that religion and education are striving to attain.

The policy makers in Saudi Arabia (whose support is essential) indicated their approval for a traffic safety education program. The rate of traffic accidents in Saudi Arabia is proportionately one of the highest in the world. The average annual increase in traffic fatalities is approximately 130 percent. Over 90 percent of all traffic accidents in Saudi Arabia were caused by human errors. The severity and the astronomical increase in traffic accidents and casualties in Saudi Arabia justified the development of a comprehensive traffic education program in Saudi Arabia.

Due to the fact that Saudi Arabia had never had any traffic safety education program, it was essential to review all programs in the United States and develop a comprehensive teacher preparation program.

This program will be a resource and a guideline for future programs in all Saudi Arabia schools. The teacher preparation program in traffic safety education in Saudi Arabia will not place its priorities on the quantity of teachers, but the quality of teachers. It is hoped that the program will produce competent and efficient traffic safety education teachers, who will live up to the objectives of teaching students how to drive safely, efficiently, and economically.

First, to compile basic statistics concerning various aspects of the traffic situation in the Arab World in relation to the world, and Saudi Arabia in relation to the Arab World, utilizing such information as concerns the number of fatalities, number of injuries, number of cars, and other related factors with an emphasis on Saudi Arabia.

The second purpose was to examine the knowledge of a sample of a growing universe - the private car owner (operator). The knowledge tested concerned (a) road signs, (b) the road rules and regulations, and (c) general safety information.

This information and certain personal data composing a profile image of the average Saudi private car owner (operator, driver) was analyzed.

A questionnaire was administered throughout the country of Saudi Arabia. The data were gathered and analyzed.

One way analysis of variance was used to determine the relationship between the test scores and the level of education and occupation, and the test scores in relation to accident and non-accident drivers.

A chi-square test was used to determine the personal characteristics in relation to accident involvement.

43 — Sindi, Suliman Bakur.
A rationale and comprehensive traffic safety education program for Saudi Arabia. Michegan. Michegan State University, 1975.
330 p.

The traffic problems that are facing Saudi Arabia are more severe and serious than the traffic problems that are facing most of the nations of the world. The huge annual loss of human lives deserves a great effort to study, analyze, and find a solution to the tragic problem.

The purpose of this study is to research the various points pertaining to the development of a rationale and a comprehensive traffic safety education program for Saudi Arabia. The research covers the

Technique can be valuable in evaluating the impacts of major transportation facilities on small communities. Based on these results, a step-by-step procedure for evaluating transportation impacts on small communities using the Delphi Technique was suggsted for use by transportation agencies in planning of major transportation facilities. The procedure required using a representative panel from the community. It also required a team of multi-disciplinary experts to formulate questionnaires, summarize responses for feedback and interpret the results of the Delphi in terms of community's needs, priorities, and values.

While other methods of citizen participation in transportation planning may give some indication of major transportation impacts and their effects on a community, the Technique provides a two-way mode of communication between the planners and citizens of small towns. It also serves as an educational tool for both the citizens involved and the planners. With more information about a project, the citizens can make a better judgement in their responses which can be more useful in planning than uninformed opinions which may lead to misunderstandings. The technique also encourages specific complaints to surface before misunderstandings may arise which may lead to mistrust and conflicts. It also gives equal voices to all participants eliminating domination by strong personalities or special interest groups.

42 — **Saif, Jallel A.**

An Examination of the knowledge of traffic regulations and defensive driving among a selected sample of Saudi Arabian Private Car owners. Michegan State University, College of Education, 1973.

216 p., illus., 30 cm.

A modern accident reporting system helps policymakers plan and organize future programs. These programs should be based on complete information about the average driver such as age, education, occupation, past accident involvement, and the other human factors involved, such as place of residence and purpose of car usage. In developing nations, including Saudi Arabia, the accident reporting system is not as yet well developed to meet these requirements, subsequently the policymakers experience many difficulties in planning; therefore, this study has been undertaken with two objectives.

TRANSPORTATION

41 — **Sayyari, Abdullah Ibrahim**
Evaluation of the impacts of major transportation facilities on small communities : a delphic approach. University of Texas, 1976.
x, 259 p.

Small towns in rural areas that lie along the routes of major transportation facilities may be significantly affected by these facilities. These effects or impacts may be economic, social, environmental, physical, political or transportation oriented. Several approaches have been attempted to evaluate these impacts with varying degrees of success. Most of the research on transportation impacts is directed to urban communities, where the problem may be more complex. Transportation agencies have directed most of their attention in planning major transportation facilities to urban areas. This has contributed to a sense of resentment and helplessness from some residents of many small communities toward transportation agencies and mistrust of their representatives.

This study was done to investigate the impacts of major transportation facilities on small communities. This investigation involves exploring available methods of evaluating transportation impacts and their applicability to rural communities. It also involved an experiment done at The University of Texas in Austin in the Spring of 1976, to test the applicability of the Delphi Technique to the evaluation of the impacts of major transportation facilities on small towns of 25,000 people or less. The panel used in the U.T. Delphi experiment consisted of 18 students at The University of Texas from small towns.

The results of the U.T. Delphi experiment were summarized in histogramic charts for each impact. It showed that there is greater tendency to form a consensus of opinion by the panel in the third and fourth rounds of the Delphi. The results also show that the Delphi

industries ; (b) a strengthening of the marketing institution to enable it to carry efficiently, its share of responsibility in promoting Common Market production ; (c) the development of adequate, efficient, and inexpensive transportation links within the region to enlarge the market ; (d) the development of measures to establish Arabian products firmly in the market ; (e) the extension of maraketing institutions and facilities to rural areas to take adavantage of large scale distribution.

MARKETS & MARKETING

40 — **Abou-Rokbah, Hassan Abdullah.**
The Arab common market ; a marketing point of view. Arizona University, 1971.

A well developed marketing system is critical to the success of a Common Market in underdeveloped countries. In the European Common Market, the size of the market measured in terms of population, income, and education is large enough to support the establishment of large-scale industries ; the channels of distribution are all well established ; and marketing facilities are adequate to facilitate the movement of goods to his final consumers. In underdeveloped countries, including the Arab nations a greater improvement in the present marketing system is needed before Common Market can be a success.

The research study discusses the inadequacy of the current marketing system in the Arab countries to support the establishment of a Common Market. It emphasizes the importance of market structure, institutions, and facilities for the establishment of a nationwide domestic market. The Arab Common Market is analyzed principally from a marketing viewpoint.

Basic research was carried out by means of a mail questionnaire addressed to a sample of two hundred industrial firms and an equal number of marketing intermediaries in thirteen Arab countries. Since it would have been impossible to study and analyze all of the marketing channels of distribution, a detailed study was made of the two major intermediaries, wholesalers and retailers, representing four product fields : textiles, readymade clothes, food, and electrical appliances. The percentage figures for usable returns were 65 per cent from the industrial firms, 76 per cent from wholesalers, and 74 per cent from retailers.

The author concludes that economic integration between the Arab countries requires (a) more aggressive efforts to raise the level of income and education of the population both in urban and rural areas in order to enlarge the size of the maraket necessaray for large-scale

section 2 analyzes the implications of innovation on income distribution.

The final chapter, Chapter IV, examines the cost of income redistribution in the 3 x 3 model. Section 1 deals with the effect of distortion on production. Two different assumptions are utilized in the analysis of this cost. Section 2 takes the case where capital is inelastic in supply, while section 3 takes the case of an elastic supply of capital.

INTERNATIONAL TRADE

39 — **Balkhy, Hassan O.**
International trade and income distribution : a 3 x 3 model.
University of New Mexico, 1973.
xii, 81 p.

International trade literature is well endowed with theorems and lemmas proved in the two-factor-two-commodity world. The Heckscher - Ohlin theorem, the Rybczynski theorem and the Stolper-Samuelson theorem, to name only the few essential results, have been proved for the 2 x 2 model. Attemps have been made to extend these results to dimensions higher than the two-factors and two-commodities. However, such attempts were devoid of «rigorous treatment.»

In this thesis a system is devised to rank commodities according to factor intensities when three-factors are employed to produce three-commodities. Some of the results rigourously analyzed in the 2 x 2 model are extended to the 3 x 3 model. Moreover, the thesis emplays the 3 x 3 model to analyze the cost of income redistribution when international trade tools are employed for that purpose.

The thesis is divided into four chapters. The introduction, Chapter I, states the problem of the 3 x 3 model and reviews the 2 x 2 model.

Chapter II deals with the three-factor-three-commodity model. In section 1 the set of assumptions and definitions of the 3 x 3 model are stated. Some of the assumptions will be relaxed in subsequent analysis. In sectors 2 and 3 I derive the relationship between factor rewards and factor intensities, and factor rewards and commodity prices, respectively. The Rybczynski theorem and the Stolper - Samuesoln theorem are extended to the 3 x 3 model in sections 4 and 5, respectively. Section 6 offers a model when capital rewards are fixed and the supply of capital is elastic.

Chapter III analyzes technical innovation in the 3 x 3 model. Section 1 startes the implications of innovation on factor ratios, while

some future year t + e where the length of e depends on observed facts about oil exploration in the United States. The reallocative effect of the present relevant tax provisions is reflected in its impact on exploration. Therefore, if the rationality hypothesis was accepted, these provisions had resulted in an optimal amount of oil descoveries, which are functions of explorations, hence no misallocation of resources. If the hypothesis was rejected, then these provisions had either more than or less than corrected the otherwise misallocation of resource depending on the direction of the bias. No actual testing is performed.

Part III also contains critical discussions of the Rolph-Break formulation of the excise effect of taxation and the McDonald differentiated tax treatment rationalizing model.

This partial analysis is resumed in Part III of the dissertation where the impact of the vertical integration and the percentage depletion allowance, as a characterizing feature of the oil industry, on each side's choice set are discussed. The advantage of vertical integration lies in the fact that it enables the firm to avoid the reduction in its profit which results from the prevalence of **polistic** power on the selling side. In a single vertically integrated firm industry, the marginal cost of the used raw material coincides with the marginal cost of producing the raw material, while the raw material marginal revenue coincides with the raw material «net» marginal revenue. A model where the integrated firm is a net buyer is then developed. We argued that such a firm has two. nature : as a user and as a producer, and since it is a net buyer it is **not** a seller, of the raw material. As a user, it aims at maximizing its profit from this process ; therefore it is interested in low crude oil prices. As a producer, it aims at maximizing its profit from this process ; therefore it is interested in high crude prices. Thus there will be a contradiction in interests, but being integrated the firm would select the alternative which yields the highest net total profit. The analysis was developed to cover all possible degrees of power in the market. The percentage of its requirement the integrated firm acquires externally and the slopes of the raw material «net» marginal revenue and that of the raw material producing marginal cost curve are all decisive factors in the firm's preference as to higher or lower **level** of crude oil prices. The percentage depletion allowance was shown to result in a bias favoring the integrated firm's nature as a producer of the raw material. Finally it was argued that if all integrated firms were lumped together, the basic conclusion would not be impaired.

In Part II the second dimension of the study was presented. It is the long-run general equilibrium of the allocation of resources between the crude oil industry X, more generally the mineral industries, and the rest of the economy Y. Here it is argued that crude oil production is a «positive ownership extrenality» creating via the uncertainty which is not accounted for in valuation, connected with its production. Thus, other things equal, competitive equilibrium would result in à misallocation of resources such that less of X and more of Y is produced. An external measure is called for to correct this misallocation ; a differentiated income tax treatment is but one way. A rationality hypothesis is then developed. It states that in the long run crude oil producers, taken collectively, should equate the addition to proved reserves at year to the expected production at

38 — **Galal, Mahsoun B.**
An Equilibrium analysis of the American crude oil industry.
University of Rutgers, 1967.
xii, 269 diagrams.

The dissertation presents a theoretical analysis of a short — and a long-run dimension relying heavily on the tools provided by economic theory.

The analysis of crude oil market equilibrium presented in Parts I and III of the dissertation incorporates (a) the supply side characterized as «concentrated oligopoly — with leadership,» a generalized Cournot Model to the case where the number of oligopolists in $n_1 > 2$; small producers n_2 in number are introduced in the oligopoly model as followers ; (b) the demand side characterized as «concentrated oligopsony — with leadership,» here a Couront-type oligopsony model is developed, the oligopsonists $m_1 > 2$ in number were viewed collectively, as a leader in relation to the small buyers m_2 in number ; (c) vertical integration ; and (d) the percentage depletion allowance. The method of decreasing abstraction was used in the theoretical development. The group equilibrium of each side of the market is studied while assuming perfect competition on the other side, no vertical integration, and no depletion allowance.

Next, market equilibrium was analyzed ; both sides were brought together while none was characterized as being perfectly competitive. The determination of total quantity and the corresponding price are discussed assuming that all buyers is one buyer and that all sellers is one seller. The concept of the «net» marginal revenue curve of the ray material is developed and viewed as the demand curve for the raw material (crude oil). Group equilibria and market equilibrium are then brought together in an intergrated framework. The raw material «net» marginal revenue curve of the buying side was viewed as the market total demand curve for the raw material, while the selling side's raw material producing marginal cost curve, beyond its intersection with the average cost curve, was viewed as the total supply curve. The overall equilibrium is discussed algebraically and diagrammatically. The latter method was found to be very helpful in deriving several interesting and consistent propositions. The impact of the side's leadership, varying from zero to its full strength, on its own choice set and on the other side's choice set is investigated. The impact of the reduction in the side's **polistic** or **sonistic** power falls mainly on the big producers, or big buyers, of the side.

Permanent settlement in Al-Hasa Oasis has mostly been determined through the centuries by the existence of a large unmber of natural springs and the availability of suitable land for cultivation. However, the origin and evolution, the location and distribution, form and structure of settlements, as well as the selection of construction materials, have always been influenced by both the human and the physical factors represented in the Oasis. The relevant factors include geology, geomorphology, climate, type of soil, water resources, and the division of the inhabitants into nomads and settlers, Shii'a and Sunna, rural and urban. Earlier insecurity, history and culture also cannot be ignored. All these factors had, in fact, acted together to produce the traditional settlement pattern of the Oasis.

Settlement in the Oasis was based mainly on date cultivation and, to some extent, on trade. Both gave the Oasis and its settlements in the pre-1930's a supremacy over most parts of eastern and central Arabia, not only economically, politically and socially, but also as a centre attracting population from outlying areas. It was the settlements of the Oasis which served at one time or another as capitals for eastern Saudi Arabia, and to which most of the wealth of the region used to flow. This accelerated their growth and enhanced their development causing them to outstrip all the other settlements of the region.

In 1938 oil was discovered in commercial quantities in the Eastern Province in areas distant from Al-Hasa Oasis, and this began to affect the established pattern of life in the Oasis. Changes began to overtake the traditional economy of the Oasis and the long-established settlement pattern. The old values and concepts began to lose their validity and to give way before new and haphazardly adopted ones. While some of the changes are beneficial, others are not, and some are even detrimental.

This study deals mainly with the settlement of Al-Hasa Oasis and shows how it has been affected by the introduction of the oil industry in the region. The impact on the traditional economy is the main cause of changes in the Oasis and has been generally investigated, and the impact on the rural and urban settlements has been examined. Many interesting facts of some importance have come to light in the course of the investigation.

tions. On the other hand, most industrial countries restrict foreign purchases of securities and subject foreign investment to tax discrimination. Thus, the reluctance of Middle East oil-producing countries to make long-term foreign investments and Western and Japanese fears of takeover have erected a large pool of short-term liquid assets in the international finance markets.

Possible solutions to the surplus problem should be sought simultaneously by the oil-exporting countries and the Industrial Region. Higher per capita public consumption, inprovement of domestic absorption capacity, and long-run and stable foreign investment provide proper policy guidelines for the Middle East's decision makers in this regard. On the other hand, an investment policy by the industrial Region that would minimize the constraints on the free movement of capital and create safe opportunities for Middle Eastern foreign investment would not only help ensure sufficient oil production but would also aid in channeling oil revenues into long-term stable investment and absorb world short-term credit surplus.

37 — **Al-Elawy, Ibrahim S. Bin-Abdullah.**
The Influence of oil upon settlement in Al-Hasa Oasis, Saudi Arabia. Durham University, 1976.
xi, 431 p., illus.

The Middle East has produced the oldest cities in the world. They represent, in their traditional form, a specific adaptation to the harsh environment and the historical events that have occurred in the region. The long and bitter experience of man in this region has, indeed, taught him how to live well in these conditions. Now the old unity of the Middle Eastern City and its harmony with the environment of the region has been destroyed by the materialism of the modern oil industry in the region. The large sums of money generated in the economy of the oil-producing countries have allowed the inhabitants of these areas to reject their valuable heritage in favour of the immense possibilities of western technology.

This traditional heritage and its recent rejection can be seen in detail in Al-Hasa Oasis, whose towns and village typify the Middle East and which has also been affected by the oil industry in the country. A study of this Oasis reflects both the tradition and the scale of change over the whole of the Middle, particularly Saudi Arabia.

area. However, recent changes in the markets and organization of the international oil industry have shifted the balance of power in favor of the oil-producing governments. The Middle East oil exporting countries, now in command of a vital and world-wide industry, face the responsibility for implementing an optimum pricing polich. Such a policy should aim at the maximization of total net return from the sales of crude oil resources.

Current Middle East crude oil prices are merely a manifestation of a demand-oriented, monopolistic pricing strategy. Such a pricing policy is less sensitive to current and potential (long-run) realities of market forces. Because their inability to close entry to the market and delimit the stimulative effects of higherprices on the long-run supply function, the Middle East oil producers cannot behave as pure monopolists and set prices in isolation of market long-run supply conditions. Higer prices (relative to the long-run market equilibrium price) and, hence, higher profits will attract new capital for operating old wells and abandoned fields at a lower price level ; for searching for new oil fields on and off shore ; and for developing potential substitutes. Consequently, the Industrial Region's crude oil domestic supply will increase and the Middle East's share in the market (imports) will decrease. Furthermore, higher prices will depress consumption and reduce demand, thus adding more pressure to imports. Therefore, the Middle Eastern producers risk a greater chance of ultimate losses by adopting a monopolistic demand-oriented pricing policy, especially with the huge amount of resources to be extracted and sold in the market.

This study suggests that the Industrial Region's crude oil market long-run equilibrium price provides a sound base and proper guideline for pricing Middle Eastern crude oil. Linking the Middle East's price to the proposed base and allowing an exponential increase over time at a rate equal to the real rate of interest (r) provides a longer period of time for greater exploitation of the huge oil resources and delays the arrival of potential substitues.

The Middle East oil-exporting countries have shown up to now a clear preference forkeeping their surplus funds in short-term money market instruments denominated in major international currencies. The Eurodollar market and deposits in other international banks, especially in the United States, have been the major recycling vehicles, taking this money on deposits and relending it to oil-consuming na-

PETROLEUM

36 — **Dukheil, Abdulaziz M.**
An Optimum base for pricing Middle Eastern Crude Oil.
Indiana University : The Department of Economics, 1974.
x, 288 p.

Our analysis of the evolution of the theory of exhausitble resources shows that scarcity, although it does not appear explicity as part of the pricing process in the early work of classical economists, nevertheless has always prevailed at the root of the process of pricing as a general regulator. However, until the early part of this century classical economists had not offered a systematic theoretical framework to explain the optimal utilization of exhaustible natural resources. The needed tools for dealing with the problem existed, but the proper framework was missing. The contemporary writing on the subject is more or less an extension and refinement of the Gray-Hotelling model. However, recent work takes the theory from the realm of partial analysis to a broader framework of general equilibrium.

Most of the recent work on the optimum utilization of mineral resources is based on the product's nature as a fixed stock. Demand is pronounced in these models ; cost, on the other hand, is given a minimal role in explaining the behavior of the system. The main reason for such treatment, which neglects the flow nature of the product, seems to be the lack of sufficient information about the technical and geological nature of product accumulation and development. With more information revealed about the technical process of oil production and the cost involved, economists are able to seek a theory to explain the optimal use of these resources that would be more comprehensive and fundamental than the simple fixed stock model. However, the theory is far from complete. Exploration, the first stage in oil production, still operates under conditions of uncertainty. Until now there has been no solid ground for a supply-price relationship for discovery of new oil and gas fields.

The pricing of Middle Eastern crude oil has long been determined by government-company relationships. Until the late 1960's, the pricing was dominated primarily by the oil companies operating in the

Moreover, production from existing resources can be increased by removing disequilibria. Removing the «barriers to efficiency» removes disequilibria. Some of these barriers to efficiency were market struc. tural variables, natural factors and government policies.

The study found disequilibria within Saudi's agricultural sector. Thus, total production from the existing resources could be increased through production economics studies and educational programs. Moreover, to alter the existing unfavorable land-labor ratio, more land investment is required, i.e., the «intensification» within the agricultural sector seems the most feasible solution.

35 — **Al-Turki, Mansoor.**
Accelerating agricultural production in Saudi Arabia.
University of Colorado, 1971.
125 p.

The main purpose of this study was to find a way to accelerate agricultural production in Saudi Arabia. The way suggested should depend on the current state of input utilization and production efficiency. If Saudi farmers are «poor but efficient,» then total production cannot be increased from existing resources farmers supply and control. If there is disequilibria within the agricultural sector, however, and farmers are «poor but not efficient,» then total production from existing resources could be increased through production economic studies as well as educational programs helping farmers to recognize and remove disequilibria.

Resource allocation efficiency in Saudi's agricultural sector was analyzed by constructing two production functions for wheat and barley (Cobb-Douglas type). The value marginal productivities (VMP) of land and labor were computed and allocation efficiency was investigated.

The results found the VMP for land under barley was higher than that of land under wheat. VMP of land, both under wheat and barley, was much less than the marginal expense of land, however. Thus, Saudi farmers experience net losses. Resources, then, are used unprofitably. Moreover, the VMP of labour was very low in wheat and negative in barley production, indicating too much labor is used relative to land.

Production function analysis suggests disequilibria, a result of very low land-labor ratio. This ratio must be altered before the agricultural sector increases efficiency.

Three solutions were considered. «Labor squeeze» and land expansion (horizontally) are ruled out ; intensive cultivation seemingly became the solution. Fertilizer, as a form of intensive technique, was investigated. A production function for fertilizing wheat was constructed and the marginal rate of substitution, fertilizer for land, was constructed from different input combinations. This function was compared with two functions the U.A.R. produced. The results show how fertilizer can play an important role as a substitute for land.

2) Surplus — capital witnessed in (a) the gap between the savings and investment ratios, (b) the high ratio of government revenues to its expenditures and (c) persistent account surpluses in the balance of payments.

3) Market narrowness.

Economic diversification is the most conceivable strategy to eliminate these three features simultaneously. This strategy could be pursued through an approach of not necessarily «balanced growth», but a co-ordinated and harmonious growth of the various sectors of the economy as well as the development of the factors of production. Such an approach tends to widen the narrow domestic market and provide a rewarding and useful outlet for the surplus capital. This approach suits very well an «affluent», but not yet developed economy such as that of Saudi Arabia.

The virtually non-existing industrial sector may be best started by those industries which depend on oil and its by-products as a source of their raw materials. An important merit of this approach lies in the fact that it tends to counteract the potential obsoleteness of oil as a major source of energy and fuel once the nuclear energy is commercially feasible.

The agricultural problem in Saudi Arabia might be tackled through (a) raising the productivity level, (b) extending the farm lands through irrigation, (c) increasing the livestock production through a proposed Bedouin Settlement Programme and (d) adjusting the pattern of production in accordance with the recently acquired consumer tastes.

To speed up the development of the entire region of Middle East, regional economic co-operation is an attractive approach. It will definitely help divedsify the production possibilities in the whole region. As a result of the enlarged markets economies of scale could very well be achieved. Regional co-operation will also allow greater mobility of such factors of production as capital, skilled labour and entrepreneurial talents.

AGRICULTURAL ECONOMICS

34 — **Al-Sheikh, Abdulrahman Abdulaziz A.H.**
Agriculture and economic development with special emphasis on a strategy for Saudi Arabian economic development. University of Edinburgh, 1970.
233 p., tables, 30 cm.

A thorough examination and analysis of some of the basic problems, economic and otherwise, confronting the majority of underdeveloped areas is the general approach followed throughout this thesis in an attempt to determine a possible strategy of economic development which could be useful to such areas. The same approach was followed in the Saudi Arabian case.

It was emphasied that economic development should be the ultimate objective of the underdeveloped areas rather than merely economic growth, for the latter refers, as defined in this thesis, to merely the rate of increase in output, whereas economic development implies this increase in total output plus the capacity of the economy to diversify and transform. To achieve this objective, and to overcome the problem of overpopulation which is caused by the extremely low productivity rather than by the mere existence of labour surplus, the strategy recommended involves an early agricultural breakthrough. This breakthrough in this vitally important sector in the vast majority of underdeveloped areas represents the growth stage beyond which the economy would be capable of economic transformation.

Three basic problems of the Saudi Arabian economy were determined in this thesis :

1) Multi-dualisms witnessed between the factors of production and between the sectors of the economy. The factoral dualism is ex-
The sectoral dualism is illustrated by the developed oil sector on one
emplified by the highly developed capital on one hand, and the underdeveloped managerial talents and skilled labour force on the other. The sectoral dualism is illustrated by the developed oil sector on one hand and the underdeveloped agricultural and industrial sectors on the other.

The performance record was disappointing. Throughout the period under discussion there was little change in the structure of production. The oil sector remained the most important part of the economy. Gross domestic product has risen steadily during the period under discussion, reflecting the rise in oil output and price. Investment target have not been realized.

The study suggests that some policy measures can be adequately used to relieve some of the specific absorptive capacity constraints, thereby increasing the aggregate absorptive capacity.

33 — **Omair, Saleh Abdulaziz**
A Study of the association between absorptive capacity and development strategy in Saudi Arabia. Texas University, 1976. x, 282 p.

This study analyzes the association between absorptive capacity and Saudi Arabian development strategy. It is the aim of this dissertation to identify, in board terms, some of the major aspects of a strategy by which to pursue economic development in an efficient and effective manner which takes absorptive capacity constraints into account.

To accomplish that aim, this study first discusses the unusual aspects of the development problems currently confronting Saudi Arabia. These aspects arise mainly from the large flows of financial capital in a situation of a modest stage of development. Saudi Arabia has financial capital available to an extent that allows it some latitude in the selection among alternative future circumstances and configurations of its society including the nature of its economic system. Three types of possible future states of the Saudi Arabian society have been indentified. The first is called a rentire society; the second a dualistic society, and the third a modern society.

On the assumption that Saudi Arabia seeks to become a modern society, the study identifies a set of allocative decision which an appropriate development strategy must take into account. These decisions include (1) present versus future sales of natural resources abroad; (2) domestic expenditures versus foreign investment; (3) among domestic expenditures, consumption versus investment ; and (4) among domestic investment, allocations among various types of investments. The study also discusses the importance and interdependence of three types of capital (physical, organizational, and human) and three types of infrastructure (physical, technological, and institutional).

The study shows that Saudi Arabia faced, and still faces, a complex set of cultural, social and institutional relationships that impedes the optimal utilization of existing resources and the development of new resources. The discovery of oil removed one obstacle the lack of capital, but the social and economic structures did not change fast enough to permit the economy to absorb the capital made available by oil revenues.

of using the output typical (or normal) growth patterns in guiding diversification efforts in Saudi Arabia during the period 1974-84. Toward this end the observed Saudi growth and diversification pattenrs during the 1960's are analyzed and the diversification efforts important in the first five year development plan are appraised. The observed patterns are then constrasted with a number of typical growth patterns, namely : Kuznets, Chenery, and Chenery-Taylor patterns. Regression techniques are extensively used to obtain direct estimates of the Saudi output growth patterns over the period 1962-71. Based on data availability the study then selects Chenery's industrial typical growth patterns to guide diversification efforts in Saudi Arabia under three alternative assumptions about the growth rate in non oil real Gup during the period 1974-84.

During the period 1962-71 the production structure of the Saudi economy underwent structural changes that are significantly different from those suggested by the typical growth patterns. Plausible reasons for the deviation of the directly observed Saudi growth patterns from those derived by using the typical growth patterns are : the country's crippling lack of trained manpower and managerial skills, the limited size of domestic market, and the country's poor endowment with natural resources other than oil and natural gas. The regression results of our estimates to the Saudi typical growth patterns are, though, not particularly encouraging. They seem to provide useful insight about the structural peculiarities of the Saudi economy. Considering three alternative target growth rates in non-oil real GDP, the study calculates the structural changes required to have the 1974 observed Saudi non-oil production structure suggested by Chenery's industrial typical growth patterns by the end of 1984.

The feasibility of the three alternative target structural changes is then tested in terms of sufficiency of oil export receipts, oil revenues and government spending, as well as, in terms of labor requirements and labor supply, and the availability of natural resources and markets. Similar analysis is made for the manufacturing major sub-sectors.

The results of the feasibility tests generally indicate that there is a great potential to realize the level of real sectoral value added per capital suggested by the typical growth patterns over the coming decade. However, the final decision should be based on some more detailed sectoral analysis including feasibility studies.

to appraise the implications of the stated economic goals and objectives of the government as determined by government declarations and expenditure priorities. In judging the appropriateness of such a framework, we will look at and project growth rates in terms of availabilities and uses of resources, setting up a probable pattern of future development. In the process, we will be concerned with two main questions ; (1) Are the Saudi Arabian development target consistent with each other and with resource availabilities ? (2) What is the nature of an appropriate test of consistency for a country like Saudi Arabia, with the following main characteristics : adequate foreign exchange and sources of capital ; little direct government intervention in the economy ; and the inherent lack of accurate data (what is available is very sketchy and uncoordinated. Much of the work deals with the Saudi Arabian (available) statistics. We appraise their quality, and interpret them to see if we can get reasonable estimates of magnitude needed for consistency testing.

From among the four major consistency tests mentioned below, we suggest what would be best for a country like Saudi Arabia and also which of those balancing equations she should spend scarce time and human resources on as a first priority. In fact, we may be able to suggest which balances should be combined in a certain order to give an adequate consistency test.

The sequence of the study is overall inductive, straiting with a careful discussion of the Saudi Arabian economy and its planning structure. We then set up the framework for testing the consistency of the economy. Next, we apply these tests to the structure of the Saudi Arabian economy in two periods : to figures we have from 1963 to 1969, and to economic targets as projected for 1975 (1394/95).

32 — **Khatrawi, Mohamed Ibn Faraj**
A Diversafacation strategy for the Saudi Arabian economy.
Georgetown University, 1975.
xii, 275 p.

Diversafacation of the economy's productive structure is the most announced development policy in Saudi Arabia since the early 1960's. Yet, to my knowledge, no explicit diversification strategy or specific clear-cut rule has been adopted to guide diversification efforts in Saudi Arabia. This study attempts to explore the possibility

economy, and hence, the state of such balance does not influence the other variables in the model.

Since the Saudi Arabian economy is a capital surplus economy, it is argued that most economic development literature which emphasizes capital scarcity is irrelevant to the Saudi Arabian case. The problems of economic development in Saudi Arabia are discussed at length. The limited absorptive capacity of the economy is found to be the major bottleneck in the development process. Factors limiting this capacity include the scarcity of skilled manpower, inadequate social overhead, the small size of the market, dearth of resources other than oil, and the absence of many institutional and social prerequisites of development. A development strategy is presented in this study. The long-run objective of such a strategy is to orient the economy towards the export of manufactured goods. This is coupled with a service industry that is aimed at the international market. In the short run, however, the policy planner should concentrate on bracking the bottlenecks in the way of achieving such goals.

Since oil exports are the only source of finance to undertake the various development project, a national oil policy is needed. The major factors to be taken into consideration in the formulation of this policy include the absorptive capacity o fthe economy, oil market conditions, technical feasibility, opportunity cost of leaving oil in the ground, the size of the proven reserves, and international constraints. An oil production policy which would keep oil competitive with available substitutes is recommended. This policy, however, will result in a surplus of funds in the short run. Various uses of these funds are suggested.

31 — **Hassanian, Mahjoob Ahmed.**
The Petroleum economy of Saudi Arabia. University of Pittsburgh, 1971.
293 P.

The main purpose of this study is to devise and construct an appropriate framework that could serve as an aggregate plan frame for testing the consistency of development targets and resource availabilities for Saudi Arabia.

It is intended to adapt this framwork to an analysis of the broad structure of the Saudi Arabian economy and its planning as well as

tion,» in that it aims at some sort of equity in the allocation of national income ; and (4) subnational regional planning in general takes into full consideration the fact that urban and rural, as well as industrial and agricultural areas, pose special problems that should be dealt with in particular ways. To serve the suggested approach, several criteria for methodology, investment, and organization are developed in detail. Simple planning techniques are recommended rather than infeasible highly sophisticated mathematical models.

Finally, it is contended that in the long run the Kingdom's revenue structure must be diversified to avoid the risk implied in having 80 per cent of total revenues provided by oil. Direct taxes are proposed as one possible means for that purpose. An «interest-free» criterion for local borrowing is discussed in connection with taxation.

The conclusion reached in this study emphasizes that the prospects for effective developmental planning in the desert Kingdom are much better that they are thought to be.

30 — Al-Fayez, Khalid Mohammed Ali
Economic development of Saudi Arabia : a case study of the government propelled economy. The Fletcher School of law and Diplomacy, 1974.
xiii, 296 p.

The relevance of economic theory to the problems of the less-developed countries has been questioned by many economists in the last few decades. This study attempts to assess the applicability of the standard macroeconomic model and its policy prescriptions to the Saudi Arabian economy.

A verbal model of this economy is presented. Government expenditures are treated as the only independent variable. These expenditures act as the main generator of income. Their behavior determines the behavior of the other variables. Income and employment growth rates are limited by the growth rate of government expenditures. The money supply in this model is a function of government expenditures. The demand for money has minimal relation to interest rate. The domestic price level is determined, to a large extent, by external forces that are independent of the domestic cost and demand conditions. The balance of payments has an indirect relation to the rest of the

ECONOMIC PLANNING

29 — **Badr, Fayez Ibrahim.**
Developmental planning in Saudi Arabia :
a multidimensional study.
University of California, 1968.
358 p.

This dissertation is mainly an elaboration of the twofold hypothesis that (1) institutionally speaking, there are **no strong** limiting factors to developmental planning in Saudi Arabia, despite the fact that all its planning attempts have thus far been ineffective ; and (2) effective planning depends primarily on the Kingdom's right choice of approach, methodology, techniques, organization, and finance.

The dissertation is divided into twelve chapters. Chapters I through VI represent an extensive analysis and examination of the first part of the hypothesis.

It is suggested that the Kingdom's politicoeconomic framework is basically cooperative, in the sense that the State helps people achieve higher standards of living **without significant** control of their social and economic life. In regard to religion, the **Quaran** is prosperity teachings are found proactivism, proinvestment, proscience, proeducation and favorable to any reliable economic activities. In regard to class structure, it is maintained that there is no **barrier** whatsoever against the movement from lower class to middle class or even upper class. As to the «spirit of enterprise,» Saudi Arabia has been recently the scene of the most spectacular growth of business enterprise the Arabian Peninsula ever witnessed.

The remaining chapters are devoted entirely to providing the «missing link» for viable development planning within the Kingdom's institutional and technical framework. Subnational, intergral, noncomprehensive **regional** planning is suggested as an effective approach on four premises : (1) it provides the government with the flexibility needed to adhere to its basic economic philosophy ; (2) it permits taking appropriate account of discrepancies in regional growth rates resulting from extreme differences in resources endowment, climate, and population density ; (3) it helps minimize «regional dissatisfac-

established, are meant to reinforce my conviction that technological expertise and achievements on one hand, and social and political advancement on the other, can achieve only minimal growth if carried on in separate vacuums. Rather, there must necessarily be as much interbreeding among th disciplines as possible, so that the survival of their progeny-specific projects as well as five-year plans, can most reliably be assured.

the kinds of information which would ultimately be required in a discipline-by-discipline analysis of desalination. Second, I personally view my emphasis on the qualitative aspects of desalination as a deliberate rejection of the contemporary bias toward unilateral, mechanistic cost - benefit analysis in the evaluation of water resource development programs. If desalination, for example, is proven to be economically applicable in industrialized nations which already have the capacity to absorb and pay for the products of desalination plants, but does not seem economically feasible in a nation where such capacity does not as yet exist, perhaps other criteria need to be applied before a proposed desalination project is rejected out of hand. The policy-makers, for instance, may feel it is necessary to divert an abundance of income from a prospering sector of the economy (e.g., oil) to achieve desirable growth in a faltering sector (e.g., industry) for sociological reasons such as raising the standard of living of that great percentage of society which does not benefit directly or indirectly from the affluence derived from the strong sector. In fact, although economic benefits may not be immediately forthcoming from such procedures, they may actually bring great long-term rewards from a more balanced economic system. Political exigencies may also be thus accommodated. This does not mean that desalination or any other single development program can be a cure-all for the various ills of a society. It too must take its place in an overall water development scheme, which in turn should form a part of a comprehensive growth policy for the nation. Third, even an interdisciplinary analysis must take into consideration the traditional values of the recipient culture. Modern sciences and technology are principally the products of developed societies with different conceptions of, for example, the rights of the individual vs. the rights of society, achievement orientation, etc. These values must be taken into consideration so that the goals of the interdisciplinary approach can be acceptable to the greatest portion of society. These values thereby act as additional criteria in the light of which the validity of modern sciences and specific analytical tools may be examined.

The interdisciplinary approach which I have advocated throughout the dissertation, and the guidelines and recommendations which are

The dissertation will hopefully inform Saudi technicians and administratosr responsible for desalination about the various angles from which the water shortage problem should be approached. In fact, the recommendations made can most reasonably be expected to achieve recognition in my own nation, where I will be on hand to personally bring them to the attention of the policy-makers concerned.

The significance of this study therefore lies more in its methodological and practical value than in its theoretical and analytical value when applied to specific arid nations such as Saudi Arabia. It is hoped that the study will partly serve as a bridge across the gap between engineers and physical scientists on one side, and economists and policy-makers on the other, with regard to the role of desalination in the economic development of arid areas.

The interdisciplinary approach can thus be seen to have aspects of strength as applied in this dissertation. Its all-encompassing character, however, does have some drawbacks in the sense that the breadth of the study means that in-depth analysis must necessarily be limited. To elaborate : the criteria, strategies and methodologies of solving the problem of water shortage which are contained in this study are partial ; only the basic principles and factors which must be taken into consideration for the efficient conduct of desalination efforts are discussed in reference to their broadest applications. These principles are generalized so as to be of direct use to those in the higher levels of governmental decision-making, who primarily need a general evaluation of specific desalination projects from those various points of view which determine government policy. In regard to the specialist, the technician, and the specific needs of the engineers, economists, and water-planners at operational levels, these general principles and criteria can offer a starting point for detailed analyses in each discipline. In addition to offering a framework of criteria, there are several other reasons why I have dealt in this dissertation (with the exception of the case study of the Jeddah plant) primarily with «principles». First, the fragmentary and often contradictory state of basic information concerning economic activities, techniques of proper water usage, cost comparisons, measurement of benefits, etc., has made a truly comprehensive **quantitative** analysis of desalination beyond the reasonable expectation of present achievement for Saudi Arabia and similar developing nations. «Facts» derived from existing attempts at such analysis have proven to be often little better than tentative hypotheses. A qualitative study, on the other hand, may be of value in pointing out

SAUDI ARABIA ECONOMIC DEVELOPMENT

28 — **Anani, Faisal Mohammed**

Desalination : Its potentials and limitations in the economic development process of Saudi Arabia. Syracuse University, 1972.

343 p.

In the process of economic development, the efficient management and organization of available natural resources is of primary importance within a general framework of overall economic and **social planning.**

In the case of many developing nations, the under-development of natural resources and of the factors of production is complicated by the lack of sufficient quantities of the high-quality water requisite to the establishment of a vital industrial base, agricultural productivity growth, and an increase in the standard of living of greater numbers of the populace.

Although the supplying of such water resources might seem merely to be a matter of the extensive application of proper hydrologic techniques, influenced to some degree by considerations of cost, the problem as I see it is actually much more complex, bearing on the accumulated knowledge of experts from a wide range of disciplines. Although this dissertation specifically deals with desalination's potentials and limitations, with reference to the case of Saudi Arabia, my approach hinges on the fact that any development program of any society must as far as possible be undertaken within the context of overall planning goals.

This study thus is an interdisciplinary examination and evaluation of desalination efforts with regard to factors having social, economic, administrative, technological and political dimensions.

Saudi Arabia has been examined and emphasized because it is familiar to the author and resource material on the subject of desalination is thus more available than it would be for another country. In addition, it is representative of many water-short developing nations.

Consideration of the strategic dimensions in the actual plans of the two countries led to the following general conclusions : (1) Theoretical arguments of balanced and unblanced growth seem to be largely irrelevant to the growth experience of Morocco and Egypt although these countries tried to exploit concepts involved in the two doctrines, such as interdependence and linkage effects, (2) Selection of strategies does not seem to be divorced entirely from theoretical issues. In many cases, particularly in regard to industry versus agriculture, theory as well as practical considerations determined the final choice. (3) Both countries showed remarkable price stability which might be contrasted with the oposite experience in other developing countries.

27 — **Sabban, Reda**
Produktionsplanung unter besonderer berucksichtigung der ablaufpl anung. Koln, Rheinische Fachhochule, 1973.
59 p.

Ziel der vorliegenden Arbeit ist es, eine ausführliche, wenn auch kurzgefaBte, Darstellung des Gebietes der Planung des zeitlichen Ablaufes der Fertigung im Rahmen der allgemeinen Produktionsplanung zu geben. NaturgemäB konnten nicht alle Einzelprobleme und Aspekte gebührend berucksichtigt werden. Hierfur sei auf Ellinger (1), dessen grundlegende Veroffentichung diese, Arbeit wesentlich gerprägt hat, für weitere Studien und ausfuhrliche Literaturangaben verwiesen.

Das zweite Kapitel behandelt die Produktionsplanung, wo auf die Begriffe der Produktion, der Planung, deren Sinn und die verschied enen Teilbereiche der allgemeinen Produktions—planung kurz eingegangen wird.

Das dritte Kapitel, welches der Hauptteil der Arbeit darstellt, geht recht ausführlich auf die zeitliche Ablaufplanung ein. Es werden in den entsprechenden Abschnitten die paturgesetzlichen und wirtschaftlichen Vorausetzungen dieses Planungsbereiches, dessen Grunddeten und einige mathematisch erfassbarer Probleme behandelt.

ECONOMIC DEVELOPMENT

26 — **Attar, Abdul-Wahab A.**
Strategic dimensions of developmental planning with particular reference to Morocco and the United Arab Republic. Southern California University, 1969.

Starting with a basis hypothesis that the existence of a clear and firm strategy will greatly affect the success of planned development, the study investigated the applicability of certain theoretical aspect of developmental planning strategies as they were carried out in the plans of Morocco. and the United Arab Republic.

This first part of the study laid down the theoretical background of the following strategies : (1) balanced versus unbalanced growth, (2) agriculture versus industry, (3) deficit financing, (4) leading with social overhead capital, (5) free international trade, and (6) strategic dimensions of the planning process itself.

The second part of the study analyzed the Moroccan and Egyptian economic systems in terms of the level of economic development, the resources base, the ownership and control of means of production, the locus of economic power, the motivational system, the organization of economic power, the social processes for economic coordination, and the distribution of wealth and income. It also reviewed and evaluated various plans in the two countries. Finally, it examined and evaluated both the theoretical strategies described earlier and actual strategies of Moroccan and Egyptian Plans.

Analysis of the Moroccan experience yielded the conclusion that Morocco could not take full advantage of its great potentialities because of many obstacles, such as rapidly growing population, backward agricultural methods, and extremely low rate of saving, and an inadequate technical staff. On the other hand, the Egyptian economy has done relatively well in recent years despite conditions prevailing in the country which reflect discquilibrium, distortions, and inefficiencies. It was concluded that unless the latter are eliminated, the future growth of Egypt will be far less significant that what was achieved previously.

yond the concern of this study. The reason why we discuss the existing system in detail, howover, is to have a deeper understanding of the facts about the economy. This way we acquired our realistic assumptions on which we constructed our monetary-fiscal framework in Chapter 5. This way also we found out about the institutional weaknesses, which in Chapter 6 we tried to reconstruct.

output supply is a great threat to Saudi Arabia and its financial position. A little too much government expenditure or a little too easy money is liable to throw the country into a state of inflation- just like what happened to it between 1956 and 1959.

Although we are interested in the growth of the economy of Saudi Arabia and its monetary stability, our concern here is with the financial side of the economy. It is not our intention to show the details of **how to** develop the resources and the lagging sectors of the economy. But we are devoting the first two chapters of this study to the discussion of these resources and sectors simply to show what kind of an economy we are talking about.

In fact our specific purpose here is to propose a coordinated monetrary-fiscal policy for Saudi Arabia. We present accordingly an overall monetary-fiscal framework to achieve such coordinated policies. Complete coordination of monetary and fiscal policies, we believe, will help the economy avoid the disadvantages of inflation and achieve its other economic objectives more efficiently

There are several reasons why this coordination is necessary. For instance, the economy should capture the opportunity of the oil revenues and develop as fast as possible before this sources of funds weakens. Secondly, the economy can not afford the high cost of fluctuations and price instability. Thirdly, the economy has a relatively big public sector whose expenditure affects practically every variable in the system. Fourthly, some policies and actions of the monetary and fiscal authorities are so interrelated today that unless they are coordinated, they are bound to frustrate each other. It is extremely important for both to know together, for example, what budgetary policy to follow, how to manipulate foreign exchange or government balances with commercial banks for stability and growth.

To prove this we discuss the monetary and fiscal developments in Saudi Arabia, each separately. In Chapter 3 the fiscal experiences are discussed and analyzed first ; then the development of money, financial institutions and monetary policy are discussed and analyzed in Chapter 4. This is done in detail despite the fact that we are concerned only with the overall financial policy of the country. In fact, any further financial breakdown by region, sector or project is be-

But this should not be surprising, because Saudi Arabia broke out of her shell of isolation only about two decades ago. Unlike the other neighboring Arab States, this particular part of the Middle East did not fall directly under any foreign occupation between World War I and World War II. Thus while most of the other Arab States have come in direct touch with the Western world since the early years of the 20th century, Saudi Arabia's relation with the modern world actually started around the middle of the century.

Modernization has begun creeping into Saudi Arabia since oil was first exported in commercial quantities at the beginning of the 1950's. To be sure, some revenues from oil came into the country in the late 1940's, but they were too meagre to pull it into the stream of modernization. Modern economic practices simply did not exist then. Even government finances were unknown and unorganized or, as R.F. Mikesell wrote in 1947 :

Western budgets and fiscal practices are practically unknown.. There appeared to be very little distinction between disbursement for the King's household and for governmental administration.

It was only with the beginning of the 1950's when oil revenues started to flow in regularly that Saudi Arabia really started to modernize its economic system. Moreover, because it has the financial resources, this country can draw upon and adopt the already available technology of the modern world. That is why changes have been taking place at relatively faster rates, at least in some sectors, than what used to take place in other countries in the past. Adopting Rostow's terminology one can safely say that the fast developments in Saudi over the last fifteen years have pulled her economy from its «traditional» to its «transitional» stage of development. And all the indications show that over the next fifteen years, the economy will be far into its «take-off» stage.

But so far the development has been moving faster in the oil, government and service sectors, whereas the sectors of agriculture and small industries, which employ the bulk of the labor force, are lagging behind. There are some common problems facing these lagging sectors, namely lack of skill, technological know-how, and social overhead capital. But the most serious problem for aggriculture is lack of water.

Until these problems are solved, the capacity of the economy to expand its national output will still be limited. This inelasticity of

No attempt is made to test hypotheses concerning the bank and the non-bank public demands for various financial assets. Data are not available concerning the independent variables that are assumed to affect these demands.

The monetary base, defined as the volume of high powered money issued by the government sector of the economy, is explained and used analytically to investigate the structure of assets and liabilities of SAMA. Foreign assets and government deposit holdings, are, respectively, the main asset and liability of SAMA.

To achieve the fourth aim of the study, we assembled the various elements in order to derive a money supply equation for the Saudi Arabian economy. The equation emerges as the product of the monetary base and monetary multiplier. Changes in the money supply, therefore, result from either changes in the monetary multiplier or changes in the monetary base.

By estimating the money supply equation, we are able (1) to investigate the value of the monetary multiplier and to compare it with its observed or computed value, and (2) to examine the degree to which variations in the money supply are explained by variations in the monetary base.

Our analysis of monetary control in Saudi Arabia in the final chapter centres on an examination of SAMA's ability to control the monetary base and the stability of the monetary multiplier. However, the difficulties involved in controllling the monetary base and limited data concerning SAMA's use of instruments of monetary control preclude us from making any strong conclusions about whether SAMA is able to offset undesirable movements in the monetary base. Monetary control is also complicated by the short-run variability of the monetary multiplier, and several methods are suggested for predicting its value.

25 — **Nimatallah, Yusuf Abdel-Wahab**
Coordination of monetary and fiscal policies in Saudi Arabia.
University of Massachusetts, 1967.
341 p.

Saudi Arabia was practically isolated from the modern world until very recently. Except for a few general descriptive publications. there is not very much written about her economy and, therefore, very little is known about it.

SAUDI ARABIA ECONOMY

24 — Malik, Ahmed Abdullah.
The Money supply process in Saudi Arabia. Indiana University-Department of Economics, 1970.
viii, 298 p.

This study presents a monthly analysis of the money supply process of the post-inflationary period in Saudi Arabia ; the period covered is 1380 through 1388 (July, 1960 February, 1969). The primary aims of the study are to (1) examine commercial bank portfolio behavior ; (2) explain the non-bank public demand for financial assets; (3) present a framework for analyzing the structure of assets and liabilities of the Saudi Arabian Monetary Agency (SAMA) ; (4) assemble these various elements in order to derive an aggregate reduced-form money supply equation ; (5) estimate the money supply equation ; and (6) examine the problem of monetary control in Saudi Arabia.

The purpose of the examination of bank portfolio behavior is to add to current knowledge of bank behavior in underdeveloped and dependent economies like that of Saudi Arabia. Much has been written about bank portfolio management in advanced and independent economies, but little has been written about this subject in developing and dependent economies. This study, by concentrating on an analysis of the entire spectrum of bank portfolio behavior, has revealed that liquidity management in Saudi Arabia is substantially different from that in advanced economies. The difference lies in the structure of assets, particularly the total absence of securities and the domination of loans and advances in bank portfolios in Saudi Arabia.

The study also examines the non-bank public's decisions as to the allocation of their financial assets between currency and deposits, and the allocation of deposits between demand, time, and other deposits. Because currency in the hands of the non-bank public dominates their asset holdings, an examination of its secular, cyclical, and seasonal behavior is included in this study. The relationship between the non-bank public demand for currency and the income velocity of money is investigated, and the non-bank public's holdings of time and savings deposits and other deposits are analyzed briefly.

5. Generell ist die Verbesserung der Qualität der Ausbildung anzustreben, zwecks Erhöhung der Produktivität und somit des Einkommens, um die Marktenge zu sprengen und von der Nachfrage her grössere Investitionen zu ermöglichen.

Mittel - und langfristig stellen sich folgende Aufgaben :

1. Die Formulierung von Grundsätzen und Leitbilder und die Bildung von Schwerpunkten für die Entwicklung muss als ein laufender und fortdauernder Prozess angesehen werden. In diesem Sinne sollte das Leitbild des Fünfjahresplanes genau definiert werden.

2. Die Planzahlen und die Prioritäten sollten nicht ein für alle Mal festgehalten werden, sondern in Zusammenarbeit zwischen staatlichen Stellen und Privatwirtschaft laufend überdacht und ggf. revidiert werden.

3. Die Planung der künftigen Entwicklung hat in Zusammenarbeit mit den übrigen arabischen Ländern und mit Blick auf die Bildung eines gemeinsamen arabischen Grossmarktes zu erfolgen.

4. Es sollten Massnahmen getroffen werden, um am technischen Fortschritt durch eine Belebung der Forschungstätigkeit an den eigenen Hochschulen mitwirken zu können.

5. Die Beseitigung erkennbarer akuter krisenhafter Störungen, die die Entwicklung des industriellen Sektors auch in der Zukunft empfindlich hemmen, muss weiterhin grösste Priorität erhalten.

Abschliessend ist festzuhalten, dass die Erdölindustrie, die bisher die wichtigsten Grundlagen der wirtschaftlichen Entwicklung Saudi-volkswirtschaft an Bendeutung verlieren muss. Damit ist nicht gemeint Arabiens geschaffen und einen Industrialisierungsprozess in Gang gesetzt hat, in der zukünftigen Entwicklung der saudi-arabischen dass die Erdölindustrie an Produktivität einbüssen soll, sondern dass die Produktion der übrigen Wirtschaftssektoren der saudi-arabischen Volkswirtschaft wesentlich gesteigert werden soll, damit sie die dominierende Stellung der Erdölindustrie an der gesamtwirtschaftli-Volkswirtschaft an Medetung verlieren muss. Damit ist nicht gemeshen Wertschöpfung zurückdrängt.

Arbeitskräften und die Vergrösserung des Fähigkeitskapitals, vorsah. Im Rahmen dieses Programms erfolgte die Gründung des Staatskonzerns PETROMIN. Der PETORMIN ist die Aufgabe übertragen worden, mit ausländischen Partnern oder reinen Lieferfirmen eine einheimische Industrie aufzubauen, die auf den einheimischen Rohstoffen basiert, und auf dem Erdölbereich die Grundlage einer einheimischen integrierten Erdölgesellschaft zu bilden. Die Fortschristte der PETROMIN waren trotz ihrer relativ kurzen Lebenszeit sehr gross. Sie gründete nämlich eine Reihe von Tochtergesellschaften, die nicht nur den einheimischen Bedarf an bestimmten Industriegütern, wie Baueisen, Düngemittel, Schwefel und Erdölprodukte deckten, sondern auch in grossen Mengen nach dem Ausland exportierten. Im ersten Fünfjahres-Wirtschaftsplan Saudi-Arabiens, welcher im Haushaltsjahr 1970 / 71 in Kraft trat, wurde die Industrialisierungspolitik der Regierung noch intensiviert. Der Plan sah nämlich zahlreiche Förderungsmassnahmen des staatlichen sowie des privaten Industriesektors vor und plante eine Zuwachsrate des letzteren von 14%.

Trotz der zahlreichen Industrieförderungsmassnahmen sind für die künftige Industrialisierung Saudi-Arabiens wichtige Aufgaben zu erfüllen. Im folgenden wird der Versuch unternommen, thesenartig einige zusätzliche Wege aufzuzeigen, um die gestecken Zielsetzungen zu verwirklichen.

Kurzfristig sind folgende Aufgaben zu lösen :

1. Schaffung von Industriebanken in den wichtigsten Ballungszentren des Landes (Jeddah, Riyadh und Dammam), um die komplementären Kräfte der Privatinitiative zu wecken und die Finanzierung von Privatunternehmen sowie neue Industrieprojekte der Privatwirtschaft sicherzustellen.

2. Durchführung von Marktstudien, um das einheimische Marktpotential zu messen und die Aufnahmefähigkeit der einzelnen Regionalimärkte genau zu bestimmen.

3. Schaffung eines Kapitalmarktes, damit eine optimale Verbindung zwischen Sparern und Investoren zustandekommt.

4. Durchführung von Studien zur Bestimmung der optimalen Betriebsgrösse, damit Produktionskapazitäten nicht un ausgenutzt bleiben. Hiefür muss der Absatzmark im voraus bestimmt werden und für die Nachfrageänderungen Sorge getragen werden.

der Gewichte innerhalb der drei Wirt schaftssektoren zugunsten der Industrie und den Dienstleistungen. Infolge dieser Verschiebungen resultierte eine erhebliche Zunahme der gesamtwirtschaftlichen Arbeitsproduktivität. Bezüglich der Zahlungsbilanz hatte der Erdölexport laufend positive Auswirkungen zur Folge. So verzeichnete die Handelsbilanz stetig einen zunehmenden Ueberschuss. Auch die Zahlungsbilanz war fast immer - mit Ausnahme von ein paar Jahren - positiv. Dies ermöglichte die Bildung von Reverven in Gold und ausländischen Währungen und sicherte der saudi-arabischen Volkswirtschaft eine solide monetäre Basis. Mit ihrem rasch wachsenden Nettoproduktionswert war der wohl wichtigste Einfluss der Erdölindustrie auf das Wirtschaftswachstum Saudi-Arabiaens die Steigerung des Brutto-Inlandsprodukts mit einer durchschnittlichen Zuwachsrate von ca. 9% pro Jahr. Dadurch konnte sich das Pro-Kopf-Einkommen innert weniger als neun Jahren verdoppeln.

Die Untersuchung der Auswirkungen der Erdölindustrie auf den Industrialisierungsprozess Saudi-Arabiens zeigte, dass durch die direkten Investitionen der ARAMCO in der östlichen Provinz des Landes ein durchgreifender Wandel einsetzte, der nicht nur die Produktionsfaktoren mobilisierte und einen Wirtschaftsaufschwung auslöste, sondern vielmehr zur Entstehung von Städten führte und die Lebensweise der einheimischen Bewohner vollständig änderte. Dadurch entfalteten sich Polarisationskräfte, die auf die umgebenden Regionen wachstumsinduzierend wirken und allmählich den Industrialisierungsprozess in Gang setzen. Durch die dem Staat zufallenden Einnahmen aus dem Erdölsektor erhielt jedoch die Industrialisierung Saudi-Arabiens die wichtigsten Impulse. Dies gilt vor allem, weil der Staat eine ambitiöse Industrialisierungspolitik verfolgt, indem er zunächst die infrastrukturelle Basis legt und dann gemäss den gegebenen Möglichkeiten die Industrie fördert und die Landwirtschaft modernisiert. Um jedoch nicht nur Infrastrukturinvestitionen vorzunehmen, ohne dass direkt produktive Investitionen folgen, ergriff der saudi-arabische Staat vor mehr als einem Jahrzehnt die Initiative zur Diversifikation der Produktionsstruktur des Landes und lenkte das Hauptaugemerk auf die Industrialisierung. Hauptziel dieser Politik war die Verminderung der Abhängigkeit vom Erdölsektor. Zu diesem Zweck wurde ein langfristiges Programm ausgearbeitet, welches die Ausnutzung der natürlichen Ressourcen des Landes, die Unterstützung der bestehenden Industrie und Förderung der Entstehung neuer Industriebetriebe sowie die Heranbildung von qualifizierten

and contributing to a narrower income gap, it may encourage a more economical land use in the city of Riyadh.

3. It is believed that the present subsidy system of a guaranted rate of return on paid-in capital is inappropriate from the standpoints of the company's internal efficiency and the allocation of national resources. The proposed alternative consists of an investment premium and a per unit subsidy on all electricity consumed by the industrial sector.

23 — **Turky, Hilmi**
Die Wirtschaftliche hedeutung der erdolproduktion fur die Industrialisieurung Saudi-Arabiens. Universitat Freiburg in der Schweiz, 1974.
xviii, 338 p.

Im Rahmen dieser Studie haben wir versucht zu zeigen, wie die Erdölindustrie die wirtschaftliche und soziale Struktur Saudi-Arabiens grundlegend veränderte und das Königreich von einem armen Nomadenvolk zu einem modernen fortschrittlichen Staat verwandelte, der insbesondere auf dem Gebiete der Infrastruktur und der allgemeinen Wohlfahrt beachtliche Leistungen Vollbrachte.

Ausgehend von der Tatsache, dass Saudi-Arabien zu den Entwicklungsländern zählt und dass seiner Industrialisierung zahlreiche Hindernisse entgegenstehen, die in den meisten Entwicklungsländern anzutreffen sind, hielten wir es für notewendig, die Problematik der Entwicklungsländer und ihrer Inudstrialisierung im Rahmen des ersten Kapitels zu beleuchten. Obwhol sich der Industrialisierungsprozess in den Entwicklungsländern unterschiedlich je nach kultureller Tradition, Klima, Umfang und Art der Produktionsfaktoren und der Art der Aussenhandelsverflechtung vollzieht, weisen jedoch alle Entwicklungsländer, insbesondere in den Anfangsstadien inhrer Industrialisierung, gemeinsame Merkmale auf. Hierzu gehören vor allem der Ausbau der Infrastruktur, der Mangel an Unternehmern und die Notwendigkeit zur Gewährung von Son deranreizen durch den Staat.

Bei der Untersuchung der Wirtschaftsstruktur Saudi-Arabiens war ersichtlich, dass die Erdölindustrie wesentlich zum Strukturwandel beigetragen hat. So führte sie zu einer grossen Verschiebung

of the level of output. However, the newer a generating station was, the lower was the per unit cost of generation. Thus, the argument that a public utility is operating in a decreasing cost industry takes the form of a reduction in the constant per unit cost thorugh periodic modernization and capacity expansion of producing facilities.

It was found that transmission and distribution costs were relatively high. This was mainly caused by a high percentage of energy loss. Further, these costs exhibited a generally constant or slightly increasing nature.

The cost of servicing the company's customers appeared to move in line with the level of output rather than the number of customers. This raises a question regarding the company's cost consciousness.

In summary, the per unit cost of delivered energy was shown to be decreasing for the system as a whole and constant for a given station during the period.

2. Regarding the pricing system, It was argued that to guarantee efficiency in both production and consumption and given the framework of the neoclassical economic theory, a public utility firm

has to equate the price of its output with the marginal cost of producing that output. In applying this principle to electricity, two marginal costs have to be taken into consideration : customers should be charged the total cost of concenting the service. Since the demand for electricity is characterized by periodic changes, then the suggested princing arrangement takes the form of a «peak-load pricing.»

One way of applying peak-load pricing is to charge the marginal costs that are incurred at the time of delivering the services. This means that we may have as many prices as there are generating stations, with the price ceiling being the marginal cost of delivered electricity from the least efficient station, and the floor being the marginal cost of the most efficient station.

The proposed pricing arrangement has the advantage, over the present pricing system, of being more equitable. In addition to bringing in additional revenue, flattening the company's load curve

During the last decade, 38 per cent of the Saudi exports were sold to West Europe, 24 per cent to Asia. 11.5 per cent to the Middle East, 9 per cent to North America and the remaining percentage to other destination in Africa, Latin America and Oceana.

Although the Saudi overall balance was favorable to the Kingdom in all years during 1960-67, it is not likely to continue that way due to the war in the Middle East and the closure of the Suez Canal. In fact, the Saudi exporst are expected to level off while the Saudi imports, their cost of insurance and freight are likely to climb. On the other hand, the Saudi contribution of $ 145 million annually to Egypt and Japan, in addition to the generous grants and donations of the Saudi citizens to their fellow Arabs will absorb a sizeable part of the surpluses of the Saudi balance of payments with a possibility of having a deficit in the near future.

Real diversification can only be achieved by developing the natural resources of the Kingdom, namely oil, natural gas and minerals, which have been proved to be in great abundance there. The cardinal point to be emphasized in this conclusion is this, external trade and foreign investment are essential for achieving the badly needed objective of economic diversification in the Saudi Kingdom.

22 — **El-Kuwaiz, Abdullah Ibrahim.**
Comparison of the actual and optimal pricing policy for a public utility operating in a developing country ; a case study of electricity in the city of Riyadh, Saudi Arabia. Saint Lauis University, 1976.
xi, 189 p.

This study is based on the historical cost of producing, transmitting and distributing electricity in the city of Riyadh, Saudi Arabia, by Riyadh Electric Company during the Hijri years 1390-94 (1970-74). Its purpose is to determine how efficient the company was in performing these activities over that time period, and to use the calculatd cost figures in recommending an alternatives to both the existing flat rate system and the existing system of government subsidy.

1. The study shows that the per unit cost of generation was approximately constant in almost all gas turbine stations regardless

21 — **Jamjoom, Mohamed Abdulwahid**
International trade & balance of payments in a mono-product economy ; a case study of the Saudi Arabian Kingdom. South California University, 1970.

The purpose of this dissertation is to provide an analytical study for foreign trade and the balance of payments of the Saudi Arabian Kingdom for the period 1958-67.

Since the commercial exploitation of oil lin 1945, the Saudi economy became increasingly dependent on oil, In 1967, petroleum industry was the source of 70 per cent of the Saudi gross national product, 85 per cent of the government revenues, 93 per cent of the foreign exchange earnings, and 99 per cent of the exports.

The Saudi petroleum industry has been in the hands of foreign companies which retained 50 per cent of the oil profits. Oil prices have been controlled and manipulated by the international oil cartel to serve the best interest of its members. World supply of oil has been in great abundance, and sales of oil have been very sensitive to international politics. Moreover, oil is an exhaustible product, and its prices have been deteriorating. Therefore, a complete dependence on such industry is a very hazardous matter and could lead to uncontrollable economic disaster.

Actually, the Kingdom has been greatly dependent on imports to satisfy most of its requirements ranging from perishable foodstuffs to the most sophisticated machines and aircrafts. The marginal propensity to import for the period 1963-67 was about. 41 on the average and rises to. 60 if we discounted the year 1967 which was considered as an extraordinary year .

Heavy demand for machinery and transport equipment for industrialization and communication raised their share from 21 per cent in 1957-58 to as high as 32 per cent in 1967-68.

During the last decade, Saudi Arabia purchased 23 per cent of its imports from the U.S. 35 per cent from West Europe, 20 per cent from the Middle East, 7 per cent from Japan, and the remaining 15 per cent from other countries in Asia, Africa, Latin America, Canada, and Oceana.

Japan has been purchasing an increasnig portion of the Saudi exports reaching about 21 per cent of these exports in recent years.

havior in such countries using prevaling demographic independent variables are inadequate. In support of such a hypothesis one need only consider the case of Egypt. Egypt has experienced a high rate of population growth, on the order of 2.5 per cent a year during the 1946-65 period. As a result, over one-half of the population is composed of persons who are dependent on the adult population, represented by the 15-59 age group, and on government expenditures of various types. Yet, notwithstanding these circumstances, Egypt achieved **a high rate of real savings** reaching 14 per cent of real GNP in 1964 / 65, with an average compound growth rate of 11.2 per cent over the 1946-65 period. Such a rise in savings would seem to indicate that **significant factors other than population and income influence savings.** This study will seek to determine these factors and ascertain their importance in raising the savings ratio in Egypt, thus, seeking an explanation for the presence, contrary to some economic-demographic theories, of a high saving ratio in a densely populated LDC with high dependency rates.

Chapter I begins with a presentation of the overall defintation of savings, then presents estimates of savings in Egypt. An analysis of the relation of savings to GNP concludes the chapter. Focusing on government savings, Chapter II provides an analysis of the role of government fiscal and institutional policies in raising government savings. This entails an examination of the major tax revenue trends, followed by a discussion of the tax raising capacity of the administration. An analysis of the impact of nationalization upon savings then follows. Chapter III, examines both the role of financial institutions and savings instruments in mobilizing private savings, as well as the impact of income redistribution on the economy's savings potential. Borrowing, domestic and foreign, is discussed in Chapter IV. Using three regression models Chapter V seeks to investigate savings determinants and demographic trends in Egypt. Chapter VI summarizes the results of the study and discusses their policy implications.

ture with an especially large proportion of the population being in the very young age groups. Such conditions have led numerous economists to argue in favor of an inverse relationship between the rate of population growth and the potential for saving in developing countries. As Peter Gray has speculated, a negative correlation should be expected between the rate of saving and the rate of population growth, since a faster rate of growth results in an increase in the dependency ratio. The argument is that the high dependency rates force these countries to spend a large portion of their incomes in raising children who either die in childhood, or because of low productivity and relatively short life spans, barely repay these expenses. Hence, a high propensity to consume and low levels of savings and capital formation result. This view is also supported by Spengler, Kelley, Brand, and Blomquist, among others.

Empirical investigations of life-cycle and dependency effects on savings have been conducted by Leff, Kennedy and Dowling, and UNCTAD. The results have, however, been extremely inconclusive. Moreover, in evaluating the empirical results presented to explain the impact of population age structure on the level of savings in LDCs, as well as the hypotheses upon which these results are based, it is important to realize the limitations of the underlying theoretical framework.

In particular, while useful to explain behavior in developed countries, the life-cycle theory may be of only limited use in explaining savings in LDCs, as a result of the assumptions upon which it is based. For example, in LDCs the motives for accumulating savings in the most productive years in order to provide for the expected needs after retirement may well be less important. The existence of much stronger family ties in many LDCs than in developed nations will tend to insure that the needs of older people who are unable to earn their subsistence are provided for. Moreover, there exists the problem of deriving a proper concept of saving which would be relevant to the people of LDCs, who may consider the purchase of precious metals and jewelry as saving.

Severely limited by the absence of sufficient data, existing empirical studies cannot seem to agree on the effect of age structure (especially the dependent population) upon the level of savings in less developed countries. One is, in fact, led to hypothesize that economic - demographic theories which attempt to analyze savings be-

20 — **Habib, Fayez Ibrahim**
Savings determinants in low income countries : the case of Egypt 1946 - 65. Indiana University, 1973.
xi, 242 p.

A strategic demographic factor often suggested as responsible for much of the effect of population growth upon savings is the age structure of the population. Recognition of its importance has led many economists to base the investigation of consumption and savings upon the life-cycle patterns of individuals.

In its simplest form the life-cycle theory postulates that individuals and households accumulate savings during their most productive years in order to provide for the maintenance of their standard of living and their consumption needs after retirement. For a society with a constant population level and structure, the life-cycle theory implies the dissavings of the retired would exactly offset the savings of the employed with aggregate net personal savings equal to zero. In a society with a growing population, on the other hand, especially in one with growing per capita income, aggregate net personal savings must remain positive. Moreover, the higher the level of current per capita income, the larger the amount of savings necessary to maintain the individual's consumption level in retirement.

Empirical studies attempting to examine the impact of demographic factors on consumption and savings, especially in the context of the life-cycle theory, have in general dealt with two key questions : (1) Once an individual becomes a productive member of society, is the pattern of savings a function strictly of age and income ? (2) To what extent are savings patterns affected by the dependent members of the society (i.e., those who are either very young or very old) ?

Studies of consumption-savings patterns in Indonesia by A. C. Kelley and J. G. Williamson and in Israel by Michael Landsberger, provided some answers to the first question, indicating a tendency for the marginal propensity to save to increase with age. An answer to the second question, the impact of the dependent population upon the economy's savings potential, has been suggested both by analytical speculation and empirical studies. The high rate of population growth in most of today's less developed countries (LDCs), which is due to high and stable birth rates being accompanied by low and declining mortality rates, has resulted in an unfavorable age struc-

19 — **Al-Bashir, Faisal Saffooq**
An Econometric model of the Saudi Arabian Economy : 1960-1970. Arizona University, 1973.
204 p.

The aims of this dissertation are the quantification of the major sectors in the Saudi Arabian economy and the establishment of some links among these sectors. To accomplish these aims, an econometric model has been built. It is based mainly on three major blocks or subdivisions. They are : the income block with encompasses seven major sectors ; the expenditure subdivision which analyzes consumption and investment ; and finally a simple monetary block.

The model covers the period 1960—1970. It has twenty-five endogenous variables and an equal number of equations. Ordinary and two stage least squares methods are used in the estimation process. Although the sample size is small, almost all parameters' estimates are found to be statistically significant based on conventional statistical tests. The signs are as expected a priori.

To refect the reality of the economy at work, as nearly as possible, the specification of the model includes the oil sector (the most important in the economy) directly or indirectly as an independent variable in each equation. This is accomplished successfully in all except the agriculture sector. The effect of the oil sector on every other sector is clearly seen through the solution of the model (i.e., the reduced form). It has been found, despite the great leakage to the outside world, that Saudi Arabia still has mainly a one sector economy. That sector's major determinants are derived from the international demand for oil.

To test the ability of the model to predict, a foreast beyond the sample period has been made. The results show that the model predicts the values of most aggregate endogenous variables relatively well. This is an encouraging finding, especially since the model was not specifically built for forecasting purposes.


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ECONOMICS



With the exception of scholars and foreign policy analysts, Arab leaders and masses did not previously accord great importance to the diffusion of information about the Arab world beyond its borders ; at best, effectiveness in the activities undertaken was assumed. This view of propaganda has generally prevailed among the developing nations, who have, until recently, considered it useless in their restricted inter-state relations, or a luxury that they could not afford.

With the creation of the United Nations, however, as well as other international and regional organizations, interaction of these states at the international and regional levels has increased significantly. A major result of this interaction has been the involvement — and the potential involvement — of other states in issues formerly considered local or within the restricted domain of specific states. Moreover, the «balance of terror,» which has been a major product of the Cold War, has imposed limitations upon force as the traditional means by which states resolve conflict. These factors have had a direct influence upon the development of other variables in international and domestic politics, primary among which has been the increased importance attributed to public opinion and the role of propaganda in influencing public opinion, and, consequently, the decision—making process.[7]

In the Middle East, the impact of these developments has been notable. The extent of Israel's dependence upon other states for its survival through economic, military, and political assistance, has fostered awareness among Arabs of the importance of gaining sympathy and support for their cause. The role of the United Nations and the superpowers in the Middle East conflict has further demonstrated the need for the alignment of support for the Arab position and the role of propaganda as an istrument of foreign policy in achieving this objective.

assess Arab propaganda overseas and particularly with respect to the Arab—Israeli conflict.

Background of the Problem

In the aftermath of the June, 1967 war, the Arab world, stunned by military defeat and failure in diplomatic negotiations, acknowledged the need for critical selfappraisal. The lack of support for the Arab position from non—Arab states—whether in moral, economic, diplomatic, military or other forms—compelled realization among Arabs that the justice of «their cause», so obvious to every Arab, was not only rejected but also not understood by the non-Arab world. This realization led to demands on both official and popular levels, for explanation of their failure not only in fields of combat, but perhaps more significantly, in gaining and sustaining some sympathetic understanding of the Arab position among non-Arabs.

In the Arab states, the severe criticism directed toward existing political and military structures and practices, was matched by condemnation of past propaganda efforts to explain the Arab point of view abroad. While Arab leaders and newspapers denounced its failings, the League of Arab States, which is charged with the responsibility of conducting information activities for its member—states at the international level, undertook a thorough analysis of its objectives and practices. In a meeting of Arab ministers of information convened by the League in September, 1967, Dr. Habbib Haddad of Syria, reflecting the concerns of his fellow Arabs, exhorted the League's members to acknowledge the consequences of their failings :

> It is imperative to point out here the great shortcomings and disastrous mistakes that our information policies have committed at the international level, at a time when Zionist propaganda was able to deceive public opinion in the world, as a result either of the lack of our information activites, or— and this is the important consideration — the mistaken practices of our information activities at the international level, which have resulted in the enemy's acquisition of needed support for its apparatus to fulfill its objectives.

Among Arabs, growing interest in the propaganda activities that their statesmen were conducting in the non-Arab world, was in sharp contrast to the general indifference that existed prior to June, 1967.

The main portion of our work deals with the capacity of the United Nations as a treaty-maker, as an administrative authority, as a wielder of force, as a grantor of privileges and immunities, and finally, as a claimant of international damages.

The study demonstrates that in comparison to the type of personality enjoyed by states, that acquired by international organizations is sui generis. The concept of personality as it applies to international organizations is a principle of future growth and not simply a hallmark of growth already achieved. Personality is a variable concept growing out of both constituent documents and custom and usage. Furthermore, our survey will reveal that a formal endowment of international organizations with international personality is not a necessary prerequisite for the enjoyment of rights and duties under international law.

18 — **Zamil, Abdulrahman Abdulla**
The Effectiveness and credibility of Arab propaganda in the United States. University of Southern California, 1973. viii, 294 P., tab.

The development of systems of rapid communication and transportation during the late 19th and 20th centuries, has had a profound effect upon patterns of interaction between states and the means by which they choose to pursue their national interests. In the sphere of techniques used by statesmen to achieve their objectives, Dr. W. Phillips Davison has suggested that a foremost development in contemporary international relations is «the recognition of propaganda as a regular, permanent function of national governments, in peace as well as war.» Acknowledged as a vital and legitimate instrument of statecraft, propaganda may be the primary means by which small states, possessing few resources and insignificant military or diplomatic capabilities, can pursue their national interests on the international level with any degree of effectiveness.

With respect to the Arab states, acknowledgement of the importance of propaganda, particularly since 1967, has been widespread among both statemen and laymen. Conferences of propaganda specialists and meetings of the Arab ministers of information, have been convened mainly under the auspices of the League of Arab States, to

17 — **Obaid, Ibrahim Ahmed**
The Historical evolution of the legal status of International Organizations. Indiana University, 1970.

International law cannot be regarded any longer as a system exclusively regulating the conduct of states. This change in the structure of international law is the climax of a long and slow process. Our survey examines the early emergence of the problem of the legal status of international organizations and the various ingenious attempts to cope with it.

Problems of status under international law became acute with the establishment of the League of Nations. Although the Covenant of the League did not touch upon the international personality of the organization, the League enjoyed rights and incurred duties on the international level inasmuch as practice took cognizance of the problems that arose.

The authoriative recognition of the international personality of the United Nations by the World Court in 1949 marked a decisive point in the development of the recognition of the legal status of international organizations. However, the authoritative recognition of the international personality of international organizations was a slow and cumbersome process due to the persistence of the orthodox doctrine on the one hand and to the various untenable attempts to construe international organizations as sovereign states on the other. Indicative of the slowness in recognizing the international personality of international organizations is that while the European Danube Commission which was founded in 1856 was accorded a species of international personality, the international administrative unions— i.e., the Universal Postal Union — which were created in the latter half of the nineteenth century were not endowed with an international personality. In other words, the legal status of the administrative unions was anomalous. Consequently, such bodies represented a regression in the development of the legal status of international organizations. Another regression in the process was the establishment of the Bank for International Settlements in 1930, which was merely incorporated under internal laws of Switzerland. Thus, it can easily be seen that the authoritative recognition of the international personality of international organizations by the International Court of Justice in 1949 climaxed a long process of acceptance and then rejection of this principle.

and consequently the super-power rivalries in the area. The creation of OPEC and OAPEC has significantly contributed to the formulation of national oil policy of states in the Gulf area which accounts for more than 60 per cent of the world's oil reserves. The new policy adopted by these organizations with regard to the production, participation and price of oil has significantly increased oil revenue and thus the political and economic power of the Gulf area.

The significant rise of oil revenues and reserves controlled by the Lower Gulf states has increased the area's importance and thus has intensified the East-West rivalries. Accordingly, the Gulf area continues to be the scene of a vigorous struggle among the powers of the world. This power rivalry is now the governing factor producing tensions in the Gulf and Indian Ocean areas which have been building since the 1967 Arab—Israeli war and the 1971 British withdrawal. These developments have caused political and military problems that have plagued the whole Middle East area including the Gulf states.

The Gulf states, with the exception of Iran, are Arab states which consider the Arab—Israeli conflict to be the principal military issue confronting the Arab world. Solution of the problem is not just the responsibility of those Arab states bordering Israel but rather the responsibility of all Arab countries. The events of 1973 proved this point when the Arab countries engaged in a war with Israel were enthusiastically supported economically and politically by the Arab states of the Gulf.

In addition to their importance as a new Arab power in the Middle East, the Gulf states are expanding their role in world politics. It has become clear that to a greater degree than for most areas of the globe, further world prosperity depends for decades to come on the resources and political well-being of the Gulf area. Accordingly, the United Nations' **ad hoc** committee designated all the Gulf states as littoral states of the Indian Ocean. This committee was established to study the ways and means of implementing the U.N. General Assembly declaration of the Indian Ocean as a «zone of peace». The future developments in the area will depend primarily on the nature of policy orientation adopted especially by the United States toward the Middle East in general and the Gulf area in particular.

1. to analyze the historical development of the Gulf states ; 2. to evaluate the economic importance of the Gulf area and its impact on other nations' policy decisions concerning the Gulf area ; 3. to analyze political development of the Gulf states and its influence on relations between states in the area on one hand and its impact on the stability of the Middle East on the other ; and 4. to assess the strategic importance of the Gulf area and evaluate its significance in view of East-West relationships. Special emphasis is given to the Lower Gulf states on the Arab side of the Gulf and to the Indian Ocean area because of their importance relative to the great powers' rivalry in the Gulf region.

This study sets forth the basis for answers to the following inquiries : the nature of defense of the Gulf externally and locally, the role of Saudi Arabia, Iraq and Iran in the defense and development of the Gulf region, the impact of unresolved issues resulting from the British policy of «divide and conquer,» the super-powers' interest and rivalry in the Gulf and its effect on policy formation in the area, and the impact of oil revenues on domestic economic developments and the economic stability of the developed and underdeveloped nations.

The importance of the Gulf is analyzed in view of its present and potential impact on the super-power rivalry in the Indian Ocean, the Arab-Israeli dispute, the economic stability of the Western industrial nations and the general political stability of the Middle East.

Data for this Study

The author benefited from a personal visit to both the Gulf and England during the data collection stage of this study. Newspaper accounts and periodicals constitute the primary source of data for the study. Results of published and unpublished researches in both English and Arabic have also been used, as have documents from several governments inside and outside the area.

The changing political, economic and military status of the Gulf region was evaluated in the context of the after-math of the British departure and the rise of new Arab states in the lower Gulf. The independence of Arab states in the Gulf has been associated with significant economic, administrative and social development. The energy crisis and the 1973 Arab—Israeli war have increased the Gulf's importance to the economic stability of the industrialized nations

5 — Basic Works of **al-Hadith** (the **Sunnah** - the traditions of the Prophet) especially **al-Sihah** (the accepted authentic works on tradition by **Sunni** Muslims) of al-Bukhari and that of Muslim.

6 — Basic Works of **al-Sirah** (Biography of the Prophet) such as **Al-Sirah al-Nabawiyyah**[13] of Ibn Hisham.

In handling these classical materials we have to be aware of difficulties in the composition and terminology. Although these works deal basically with the same areas, yet their structure is not unifield. For example, questions related to be the area of external relations may be discussed as an issue of applying criminal law to **Dhimmis.** It could be found either under sections dealing with **Dhimmis** or **Hudud** (Islamic criminal law) or both.

The terms used are not standardized either. While the issue of war and peace is dealt with under the headnig of **Siyar,** its basic elements are dealt with, in most works, under the title of Jihad. However, we find al-Shafi'i in his major work **«Al-Umm»,** deals with the same issue under the title of **al-Jizyah** (poll tax). Similarly, the subject of rebels is commonly handled under the title of **Ahl-al-Baghi,** but Ibn Rushd (Averroes) deals with it in his book of **Fiqh, Bidayatu al-Mujtahid,**[14] under the title of **al-Harbi.**

16 — **Khalaf, Abdullah Abdulmohsen**
The Changing political, economic and military status of littoral **Arabian / Persian Gulf States : its impact on world powers.**
University of Idaho, 1975.
ix, 330 p.

Until the past few years, the Arabian / Persian Gulf and the Lower Gulf states in particular were relatively unknown to most people. But in a short time they have become the objects of worldwide attention. This has come as a result of the 1968 British announcement that they would withdraw their military presence in that area and terminate the treaties existing between them and the Lower Gulf states. This decision to withdraw from the region, implemented in 1971, has produced many changes in and around the Gulf which affect the political, economic and military status of the states in the area as well as the interests of the major world powers. These developments serve as the tools for establishing the basic objectives of this study as follows :

count of Muslims' achievements), yet these matters were conceived of as internal matters of **Dar-al-Islam** (the Muslim state and/or society).

But to understand the classic Muslim thought in terms of international relations, we have to discuss the juristic questions of **Ahl al-Baghy** (rebels), **Khilafah** or **Imamah** (caliphate), **Dhimmis** (the non-Muslim subjects of the Muslim state), **Mu'ahidins** (non-Muslim parties of peace agreement with the Muslim state), **Musta' mins** (enemy's subjects granted safe conduct by Muslims to enter Muslim territory), besides the question of Jihad between **Dar al-Harb** (the non-Muslim states or territories which were at war with the Muslim state) and **Dar al-Islam,** in order to cover the following three aspects of international relations : relations between Muslim states, relations between Muslim and non-Muslim states, and non-Muslim minorities withn Muslim states.

The source material used, besides the secondary works on the subject, are the basic works of the **Sunni** (orthodox, majority of Muslim peoples) **Fiqh** (jurisprudence) which are originally written in Arabic. These include :

1 — Basic Works on Jihad such as **Mudawwanatu-Malik,**[6] **Sharh al-Siyar al-Kabir, Al-Umm, Al-Mughni and Ahkam Ahl al-Dhimmah** of Ibn al-Qayyim al-Jawziyyah[7], etc.

2 — Basic Works of **Fiqh** (Islamic Jurisprurence) on **Khilafah,** such as **Al-Ahkam al-Sultaniyyah** of Abu-Ya-là al-Farrà (al-Hanbli) and that of al-Mawardi (al-Shafi'i), and **Al-Siyasah al-Shar'iyyah** of Ibn Taymiyah, etc.

3 — Basic Works of **Tafsir** (commentary on The Qur'an) by classical authorities such as al-Tabari, al-Razi and Ibn Kathir. The classic works of Qur'an, such as of Ibn Kathir or al-Tabari, provide substantial information on the direct reasons for the revelation of Qur'an **(Asbab al-Tanzil)** and on the question of abrogation **(al-Naskh),** besides the traditions and opinions of the first two generations of the Muslim juristic authorities of **al-Sahabah** (The Companions of The Prophet) and **al-Tab'in** (the jurists who worked with them)

4 — Basic Works on **Asbab al-Tanzil** (direct reasons for revelations) such as **Asbab al-Nuzul** of al-Wahidi al-Nayasaburi, and **Kitab al-I'tibar fi al-Nasikh wa al-Man-sukh min al-Athar** of Ibn Hazm al-Hamadhani.

formalistic situation of Muslim thought has reduced the choice to merely two alternatives either to be «progressive» and «modernist» or to be a «devout Muslim» and be «pastist.»

It would be no surprise if the Muslims were to be left with neither this world nor the hereafter. Under present conditions, they grasp or employ, in a meaningful way, neither Islam nor secularism. For this reason, it is understandable that millions of Muslims, controlling a substantial amount of real and potential resources, who have a burning desire for power, have not been able to achieve power and participation in the modern world. The problem posed to the student of international relations is whether the basic principles, values, framework and philosophy of Islam, in the field of international relations, can be unshackled from the immediate, concrete, historical experience of early Islam, and be applied to contemporary life. Do these traditional principles adequately encompass the basic needs for cooperation, peaceful co-existence and basic human rights ? If so, in what manner and to what extent ?

Put different, the question is whether Islam is able to provide a framework which is sufficienly free from the particulars of the traditional place-time element to enable Muslims to realistically and constructively participate in world affairs and to achieve their goals. Conversely, is Islam only a set of traditions, bound to a point in history and tied to its place-time dimension ? Is it possible for a devout Muslim to lead such a dynamic modern life, with a clear conscience, without being hindered by the traditional legalistic and moralistic approaches ? These approaches, stagnant and formalistic as they are, have actually hampered the creativity, maneuverability and motivation to compete, improve and participate in the modern world. This state of mind led to the process of piecing - together **(Talfiq)**, employed by the modernists in the evolution of Muslim thought.

Areas of Research and Source Materials :

Medieval Muslim jurists perceived the diverse Muslims as one **Ummah.** This perception of **Ummah** continued in spite of the shifting emphasis and focus from political to moral aspect. Because of this, jurists continued to deal with matters of external relations as basically the question of war and peace **vis-a-vis** noon-Muslim peoples. Although the affairs of non-Muslim minorities and rebles were dealt with basically under the heading of Jihad (struggle) or **Siyar** (ac-

INTERNATIONAL RELATIONS

15 — **Abu-Sulayman, Abdul-Hamid Ahmad**
The Islamic theory of international relations : its relevance, past and present. University of Pennsylvania, 1973.
xlix, 213 p.

The Muslim world, stretching from Morocco on the Atlantic to Indonesia in the Pacific occupies a sizeable part of this world and played an important role in human history. At present, the prevailing conditions in the Muslim world have not been conducive to effective participation in international affairs. This is partly due to political fragmentation, internal conflicts, poor economic conditions, insufficient technological knowledge, illiteracy, poor health conditions and a very low per capita income. These circumstances contribute to widespread human misery and a dangerous power vacuum among predominantly Muslim states. The study of international politics of the Muslim world is of vital concern to the student of international relations. A serious investigation in this area requires an interdisciplinary approach in order to provide an understanding of this problem. This approach requires the employment of psychological, cultural, historical and Islamic techniques, and the Arabic language. The present study is an investigation of traditional Islamic thought and its capacity to meet modern changes and challenges in the field of international relations.

There appears to be a discrepancy between the ideal Muslim belief and the application thereof, keeping in view the needs and requirements of the modern world. This situation, in turn, has further led to the loss of creative capacities and lack of incentive on the part of the Muslims in shaping the destiny of mankind by improving their state of affairs.

The problem of the Islamic theory of international relations as presented by most Muslim writers is virtually a model case. The theory is introduced as rigid, static, and moralistic, while policies reflect the concrete historical experience of early Muslims. However, it is clear that in this rapidly changing world, such policies cannot provide policy-makers with the proper framework for a dynamic, effective and realistic process of decision-making. This static and

14 — **Zabarah, Mohammad A.**

Traditionalism vs. Modernity - internal conflicts and external penetrations : a case study of Yemen. Howard University, 1976. v, 249 p. maps.

Using Yemen as a case study, this evaluation purports to examine the effects internal conflicts and external penetration had on the transformation of Yemen from a traditionalist to a relatively modernist society. The study first discusses the relevance of the topic as it applies to Yemen, and then proceeds to evaluate the three significant eras : the isolationist period, the era of economic and political transition, and the civil war and revolutionary period.

After discussing Yemen's socio-political systems and the causes behind the adoption of isolationism, the analysis proceeds to use Manfred Halpern's theory of coherence and incoherence in evaluating the evolving political and economic changes in Yemen. The examination as seen in this perspective asserts that internal conflicts and external penetrations were equally responsible for the political changes in Yemen. They worked together in the political transformation of Yemen because they were influenced by the concept of Arab nationalism.

The study then examine the Yemeni situation after the 1962 revolution and the subsequent foreign intervention in the Yemeni affairs. Traditionalism and modernity are in this era in an arms conflict. It was a logical continuation of the power struggle between Arab traditionalists and Arab modernists for supermacy in the Arabian Peninsula. The defeat of the royalists did not, however, extend to traditionalism. Nonetheless, traditionalism was weakened.

Finally, the study evaluates the problem of national reconciliation and national integration in their applicability to Yemen. It asserts that national integration is a natural extension of the Yemeni historical experience.

3. To examine the assumption that the Arab-Israeli dispute was the direct factor in intensifying the political use of oil power by discussing :

   a) the objectives which the Arabs hope to achieve from utilizing oil power ;

   b) the reaction of the consumers to the Arab utilization of their oil power ;

   c) the impact of oil power on the attitude of the consumers, particularly Western Europe, Japan, and the United States, toward the dispute.

4. Finally, to discuss both the potentials and the limitations of oil power in terms of the reality of oil power and its competition with other forms of energy.

In order to analyze the relationship between oil and the Arab Israeli dispute, the study is divided into three parts. The first is an introduction dealing with the historical context of the study salient features of the oil industry and background to the Arab-Israeli conflict. This framework provides the basis for understanding recent developments in both the political and economic spheres of the Middle East.

The second part of the study deals with the Arab oil strategy from the early 1940s to the 1973 October War and the relationship between oil and politics in this strategy. From this point of departure, Part II is divided into there chapters (III-V). Chapter III establishes the relationship between the Arab-Israeli conflict and Arab utilization of oil as a political weapon. Chapter IV evaluates and analyzes both the Arab oil strategy during the October oil revaluation and the advancement of Arab political leverage in world affairs. Finally, Chapter V discusses the impact of oil power on the Western industrial countries.

Part III is an evaluation of oil power and the future of oil as a vital source of energy. The conclusion of this study shows that the Arab-Israeli conflict is the major, if not the only, factor escalating the politicization of oil in the Middle East.

These are the principal issues of the present volume. Yet there are still several equally important matters standing at the center of the study. Our effort was, therefore, directed to provide answers to the several questions presented in this thesis. The answers that resulted (legal, managerial, personnel, financial, and political) tell us that for one to undrerstand the enigmational concept of the government corporations in the United States, it is important for that one to see the concept from the political window overlooking the sectional and political struggles on Capital Hill, struggles that represent the nature of the pluralistic society in the land of free enterprise.

This abstract is approved as to form and content. I recommend its publication.

13 — **Sowayyegh, Abdul-Aziz Hussein**
Oil and the Arab - Israeli conflict : a study in Arab Oil Strategy between 1948 - 1973. University of Claremont, 1976.
xi, 292 p

The major theme advanced throughout this study is that oil and politics in the Middle East are inseparable. Oil is the key to understanding Middle Eastern politics. This fact is especially true with regard to the Arab-Israeli conflict. Thus, this study examines the true place of oil in the Arab - Israeli conflict.

The thesis of this study is that as long as the Palestinian question remains unsolved, and as long as oil power remains a factor in international politics, the Arab oil-producing countries will continue to utilize their oil as political leverage to advance the Arab cause. Thus, the study is directed toward the following objectives :

1. To examine the relationship between the Arab-Israeli conflict and Arab utilization of oil as a political weapon by tracing the origin and background of the Arab oil strategy from the establishment of Israel in 1948 until the 1973 October War.

2. To examine the instruments of the Arab oil strategy : the cutbacks in oil production; embargo of total oil supplies ; and escalation of oil prices and nationalization of foreign, particularly American, oil companies.

12 — **Kayal, Mohiddeen Darweesh**
Government corporations in the united states : A dilemma of the pluralistic society. University of Colorado, 1972.
254 p.

This thesis is an attempt to study the government corporations in the capitalistic society of the United States, especially economically and commercially oriented enterprises. The study is approached from the most critical phases that concern the status and role of the public corporate enterprises under the rule of American federalism. Though the history of the government corporation in the United States goes back to the early history of the American nation, when the first Bank of North American was established in 1781, the fact still remains that the issues of public ownership in particular and the concept of positive government in general are as debatable as ever. At times, especially during the three world crises — the First World War, the Great Depression of the thirties, and the Second World War — government corporations in the United States have been tremendously increasing and haphazardly expanding ; at other times they were curbed, controlled, and, except a few, transferred or abolished. During this ebb and flow of the government corporations in the American economy there were two main schools of thought principally concerned with two issues of an irreconcilable nature — that is, autonomy versus accountability of government corporations. The first school of thought has emphatically recommended the corporate form of organization for public economic enterprises to infuse such government institutions with the «new» blood of efficiency and flexibility, the chief attribute of private corporations, and to protect them from political abuse. This view was seemingly influenced by the government corporations' experiences under a «strong» executive system such as that of the British government. Unfortunately, however, advocates had failed to understand the chief objective of the government economic enterprises, the sectional social structure, the economic principles, and the political reality of the American government.

Inasmuch as the other school of thought (public accountability) is concerned with American democracy, seen in its broad sense, it never permits the government corporation a great deal of autonomous power since that represents an invariable threat to the government's constitutional responsibilities in general, and to the realtions of the officials' constituencies in particular.

The Gulf states, therefore, continue to be the scene of a vigorous struggle among the powers of the world, for the control of these states and their resources force upon the oil-consuming countries in Europe and Japan an accommodation to the directives of the controller.

Today, the United States is in control of the larger portion of the oil in the Gulf. In addition to its being an impressive source of financing the United States' balance of payments deficits, oil in the Gulf, controlled by the Americans, is a factor in the exercise of world leadership.

This American position has, however, been challenged by the rising power of the Soviet Union. Taking advantage of America's foreign policy which resulted in the strain of Arab-American relationship, the Soviet Union leaped over Turkey, Iran and Pakistan — the northern tier — and concentrated its efforts on Egypt first, and then Syria, Yemen, South Yemen, and Iraq. The countries of the northern tier, witnessing the Soviets outflanking them, saw, therefore, no meaning in holding their alliance with the West in an anticipation of a Soviet drive from the north while the Soviets were already in their backyards.

Thus, with their task almost completed with success in the northern tier, the Russians had the Gulf open to provide them with their age-long drive for warm water, and the instrument necessary for influencing the political behavior of the NATO countries and Japan. In one leap, therefore the Russians had most of the Arab world, the northern tier, and now Europe and Japan either in an open quarrel with the United States or breaking away from American influence.

This is, then, the rivalry which is now dominating the scene in the Persian Gulf. But, while this rivalry is taking place between the superpowers there emerged a power center from the oil-producing countries which made use of this big power struggle. The oil-producing countries gathered together in the formation of OPEC to redress the power of the companies and attempt the control of their oil resources.

The trend, however, indicates that the Russians are drilling deep in the Gulf. It will not be very long before they effect a break away in the political orientation of western Europe and Japan. This abstract is approved as to form and content. I recommend its publication.

dom's political base are analyzed in both chapters four and five. Such treatment of these two subjects has not been made elsewhere.

The final chapter deals with the many innovative facets and developments in Saudi Arabia reflecting the fact that within two decades, the country has been able to build the fundamental bases of an efficient government with a speed unprecedented among other developing nations.

This disseration does not try to develop or introduce the ultimate panacea for all developmental ills or problems. Rather, this work on the Kingdom of Saudi Arabia is but a beginning. In the near future, other scholars, be they Arabs, Muslims, or Westerners, may take up where I have ended, and will contribute to the promotion of international knowledge as well as establishing a much better understanding of the Kingdom of Saudi Arabia.

II — **Kayal, Alawi Darweesh.**
The control of oil ; East-West Rivalry in the Persian Gulf. The University of Colorado, Department of political Science, 1972. 329 p. 28 cm.

The purpose of this study is to reveal a pattern in the control of oil in the Persian Gulf area as functional to the power relations of the day. Thus, with Britain relinquishing its role in the management of international relations early in this century, the United States assumed the responsibility and hence the dominance of the Gulf oil only to find itself dickering with rising power of the Soviet Union. In the meantime there appeared in the formation of the Organization of the Petroleum Exporting Countries (OPEC) a power center which is bent upon the correction of past injustices and the control of the oil resources.

The cheapest and most abundant oil supplies are concentrated in the Gulf area. Corollary to this oil concentration is to be found a European and Japanese heavy dependenc on these oil resources. Also, it is estimated that by the end of this decade the United States will be importing oil from the Gulf region and North Africa in the order of one-half of her petroleum needs and that the Soviet bloc will be experiencing a «fuel deficit» of more than 100 million tons per year which will be filled by imports from areas across the borders.

POLITICAL SCIENCE

10 — **Al-Farsy, Fouad Abdelsalam**
Saudi Arabia : a case study in development. Duke University, 1976.
xvi, 322 diagrams.

This dissertation seeks to analyze the extent to which Saudi Arabia has been treated in the standard literature on political development in the Middle East. This is done in the first chapter. While it was widely suspected that Saudi Arabia was not adequately treated, this chapter demonstrates conclusively that the condition is even worse than commonly believed.

The gross inadequacy of scholarly writing on Saudi Arabia should be made evident if for no other reason than the widespread commentary on that country provoked by the crises of petroleum distribution which started in October of 1973. The importance of the Kingdom of Saudi Arabia in the economy of the world along with other significant developments with respect to Islam is evident.

Ordinarily, perhaps, one would not have gone into such detail about the gross neglect of Saudi Arabia, but the disparity between published scholarly work and the importance of the country seems to make this analysis essential.

Surveying the literature on political development of the Kingdom of Saudi Arabia, the relative paucity and inadequacy of books dealing with the history of Saudi Arabia became evident. Therefore, the second chapter of this dissertation is a concise, up-to-date history of the Kingdom. This chapter deals with various aspects of Saudi Arabia, e.g., geographical considerations, the rise of Islam, the five pillars of Islam, foreign relations, and the consolidation of the nation by King Abd Al-'Aziz Al Sa'ud. The history of petroleum in Saudi Arabia, along with the petroleum concessions, the current gradual ownership of Aramco by the government, and the brief history of OPEC and the OAPEC will comprise the third chapter of this dissertation.

The polity and organization of Saudi Arabia along with the King-

and administrative aspects started to develop in a significant way after the transition of old small directorate in charge of propaganda activities into a full-fledged Ministry of Information.

Television broadcasting is the subject of the Fourth Part. It began in 1965 with two interim TV stations at Riyadh, the Capital and Jiddah, the second largest city. Now there are seven TV stations covering the major cities of Saudi Arabia.

MASS COMMUNICATIONS

9 — **Shobaili, Abdulrahman Saleh**
An Historicl and analytical study of broadcasting and press in Saudi Arabia. Ohio State University, 1971.
367 p.

The study is the first comprehensive effort to examine the communication media in Saudi Arabia. Utilizing historical and descriptive analysis as the research methodology, the study investigated the media's organizational, technical, programmatic and administrative developments, with a deeper insight into the historical and cultural context which affected the media's growth, exploring the relationships between the media and the past and present political, religious and social life in the country.

The First Part of the dissertation provided a summarized background of the history of Saudi Arabia, a necessary orientation in order to understand the development of the media throughout the years. It also included a review of the underlying structure upon which the Ministry of Information functions. Mass media—radio TV and the press, including books, magazines and pamphlets and motion pictures, are regulated and controlled by this Ministry.

The first known newspaper in the country was Hijaz which appeared in 1908 in Al Hijaz on the western coast, almost twenty-five years before the country was united under the present name, Kingdom of Saudi Arabia, in 1932.

The Second Part provided a quantitative and qualitative analysis of the press, which since 1964, is owned privately by eight press establishments, administered by boards of directors with autonomous powers in accordance with the provisions of the Press Law of 1963. Those organizations took over from the old small firms privately owned by individuals.

The Third Part was devoted to the history of radio broadcasting. It started in 1949 with a small 2.5 KW transmitter, heavily emphasizing religious programs until the 1960's when programming, technical



POLITICAL SCIENCE INTERNATIONAL RELATIONS



Finally, it is well to close with the cautionary remark that the problem of inter-regional interaction and Northeast Arabian prehistory as documented in this study represent but a mere pre-uninary outline, a setting of a framework for a vastly more complex more of cultural origins in and processes of «difusion» from dreater Arabia. The results contribute but to a basic understanding, and as such they belong to a rudimentary stage of prehistoric exploration in the area. The need for further exploratory work is quite urgent before any Time spce systematics can ever be properly developed.

ing of the origin and development of civilization in «nuclear» Southern Mesopotamia and the possible import the present study will have on that understanding.

In the prevalent opinion of most culture-historians of Mesopotamia, the Ubaid «period» has always stood for that primary ingredient marking one end of a cultural continuum, essentially particular to that area, and along which the complex of the civilizational growth can be reckoned. Thus, Professor Oppenheim has aptly described this continuum as comprising at least five distinct stages of development. He assigns the Ubaid period, also equivalent to the pre-sumerian epoch, to a primary category called «the Basic Aggregate» or (substratum), (Oppenheim 1967 : 17). The author seems to imply that although this «substratum» is by no means properly defined, nevertheless, it is already marked by a Mesopotamian character which subsequently determined the dimensions of the various developments. While in principle one is inclined to agree to such a general formulation, at least in view of the unique ecological potentials and the «nuclear» aspect of the region, one cannot fail to recognize the essential, diverse inter-regional interactions which appear to have been decisive in forming that «Basic Aggregate».

The view forwarded here stresses the analytical importance of the constituent elements of that cultural process in Southern Mesopotamia that is chronologically equivalent to Ubaid and not necessarily the significance of this process to later cultural manifestations. These latter may very well have had their own sets of «catalytic» causal factors, to borrow Leach's famous dictum (1954), «every real society i sa process in time» In this general respects.
I share the preference :

> «........ to regard Mesopotamian civilization as a bundle of ongoing dialects, an interacting system of regions and specializations whose paradigm shifted and is to a certain extent imposed only arbitrarly ....», (Adams Nissen 1972 : ix).

In other words, the cultural graduient in the «nuclear» area particularly during the earliest periods, seems, and now is found, to have undergone various changes that, basically reflected one or another regional alignment and/or influence. This study has hopefully, proved to be one, however tentative, empirical docurentation for such a theoretical framework.

subsequently had. Indeed, we may even suggest that Southern Mesopotamia was a marginal hinterland area with respect to the surrounding cultural regions, a position that was perhaps conducive to the pattern of cyclical exploitation and later occupation by the early East Arabian populations. The optimal ecologic conditions of the alluvium for irrigation agriculture may in this sense be quite secondary to the essential demographic milieu ; the fundamental subsistence transformations could not have occurred in a population vacuum, nor could they have been brought full-fledged as the present record lead us to believe.

It was suggested elsewhere above that pre-Ubaid occupations in the alluvium could very well be irretrievable due to the fact that they are either buried underneath silt sediments, sand dunes, or worse are hard to assess altogether. The proposition that no occupation was present is completely rejected here in the light of the evidence, however indirect, provided by this study.

In sum, the evidence leads to the probably tientat he suggestion that the East Arabian populations may have formed the basic ingeredient in the alluvium upon which diverse elements were added through processes of ecologic adjustments and interactions. The situation may have involved progressive sedentism of essentially migratory elements, and homogenized interrelationship with «broad-spectrum» localized collectors in addition to fishing, marine-oriented communities. In this respect, Oates has long reminded us that «we should be prepared to find traces, in pre-Ubaid or pre-Eridu times, of more than one type of community, differing from one another in material culture and perhaps in physical type and language», (Oates 1960 : 49). While it might be difficult to assess the latter two factors, it is very justifiable to assert that the present evidence bears directly on the first.

The painted pottery assemblage so distinctive of Ubaid both in lower Mesopotamia and Northeastern Arabia, as well as elsewhere, could be regarded as a technological by-product of the intensive interregional interactions that ensued in the former following its population by elements from the latter. This material culture or its idea, could very well be seen to have spread to East Arabia through the same contact mechanisms of population movements.

Before closing this study one further question of relevance must be addressed. This concerns the established conceptual understand-

«Although it has been traditional to seek evidence for the terminal hunting and collecting level ...... in caves, it becomes increasingly likely that the people of that level of development also lived in open encampments. It is also increasingly likely that they became ever more specialized in the sense of making cultural and seasonal adaptations to regional and even sub-regional environmental opportunities as time went on», (Braidwood 1972 : 317).

The ensuing stage of «incipient cultivation and domestication», as the author ousely, indicated (Braidwood and Wobllecy 1962), is more of a heuristic device and thus remains difficult to identify in actuality.

The evidence of the stone-age culture in East Arabia now affords a fresh new indication for a possible direction of the early processes of domestication that were seen to have reached the alluvial valley by the fifth millennium B.C. There exists a good probability that the range and distribution of the large mammals such as Bos and equid in addition to sheep/goat, were far wider than had ever been anticipated for Eastern Arabia. Already, many indications point to cattle domestication, perhaps by as early as the sixth millennium B.C. It is not inconceivable to consider these early hunting or general herding populations to have been the same as those who participated in the succeeding stage that integrated other adaptional influences within southern Mesoptomia, from the north and east to develop a fully-settled irrigation agricultural way. of life. This would make it the more cogent to conceptualize the subsequent cultural interaction between the two regions on the level of socio-religious and economic exchanges that could properly have depicted the earlier population ties.

Nor is it entirely speculative to propose now that the long standing debate on the origin of the Sumerians can now be reviewed within the context of this evidence. Again, it is very crucial to keep the multi-regional aspect of such origin in proper perspective to avoid the pitfall of ascribing a direct causal interpretation. In other words, the original population in the alluvial plain may very well have come from East Arabia to exploit an ecologic niche, but it was decidedly the influence of and the interaction with the adjacent areas that created a unique «cultural niche» that was destined to reach higher levels of cultural complexity than any of the individual formative areas ever

The result may have meant large population movement into the alluvial plain. This argument is strengthened by the recent evidence for abrupt changes in settlement configuration in the latter area following the end of Ubaid «period», (Adams and Nissen 1972).

It must be emphasized, though, that such developments should not be interpreted to mean a subsequent end of any contact or interaction between the two regions. Inter-regional contact seems to have continued afterwards, though on quite different levels of interaction.

C. The last component in the prehistoric record of Northeastern Arabia marks the chronological boundary of the major concern in this study. Hence, it is of only marginal interest to the central thesis.

This stage actually belongs to the protohistoric ranges of time for the area, Posaibly corresponding to the erly (true) history in nuclear Southern Mesopotamia, ca. mid-third millenniu mB.C. The settlements thern Mesopotamia, ca. mid-third millennium B.C. The settlements of this range in Northeastern Arabia are part of a wider inter-regional trade network. Cultural ties with Mesopotamia, southeast Iran and probably the Indus. Valley area are allevidenced in this type of interaction.

The pre-existing overland contact routes with the alluvial plain may have enhanced the development of an internal network of export and trade activities simultaneous with the maritime connections, through centers like the Island of Bahrain, probably Ancient Dilmun. In this way the role of East Arabia in the third millennium situation can be seen as a distant reflection of its earlier, admittedly, different cultural interaction with Mesopotamia.

To realize the full implication of the various results summarized above the general theoretical syntheses of prehistoric developments in the Ancient Near East must, briefly, be brought to focus.

Braidwood's early formulations for the emergence of settled, foodproducing way of life in the Near East, (1960), have since been refined and considerably modified. The areas for the achievement of the several processes involved, i.e. settled patterns and the domestication of certain plants and animals, have been extended beyond the confines of what was previously seen as «natural habitat zones,» (Braidwood and Braidwood 1969). Thus, the author has recently stated that :

The results, in conjunction with previous syntheses, however, strongly suggest considering the latter as the outcome of a cultural «sphere of influence» which entailed a process of integration and amalgamation of peoples and ides in the alluvium of lower Mesopotamia as a result of direct interaction with the surrounding «hinterlands». In this sense it was found justifiable to attribute the Ubaid settlements in Northeastern Arabia to that multirezional cultural interaction. The findings disclosed stratigraphic association between the stone-age sequence and the, presumably, erliest painted pottery or Ubaid - related manifestations. Furthermore, a general continuity in subsistence and settlement patterns was observed in the emerging, new complex of interregional interaction.

The Ubaid settlements locations appear to have been successively displaced from southern interior latitudes to northern coastal areas with a concomitant progressive reliance on marine resource adaptation vs. generalized herding and «board-spectrum» Hunting and Gathering. This probably, was, related to shifting ecologic environments and climatic conditions. However, it is also proposed here that the socio-cultural context of inter-regional relationships was perhaps equally determinative particular with regard to the gradual sessonalits the ultimate dislocation of the settlements. A theoretical model for interregional interaction (Flannery 1968a), thus has been suggested as a possible explanatory framework once suffiecent and more divers fed data become availabel.

The model involves the postulation that during the Ubaid Northeastern Arabia and lower Mesopotamia were drawn together by a ritual-economic pattern of exchange and interaction in contrast to the earlier adaptational network of migratory cycles. The exchange is defined in socio-cultural terms rather than in purely economic or trade relation. Marine resources utilized in ornamental materials e.g. shell and oyster pearls were the principal exchange-value items from Northeastern Arabia. Of some significance to here is the important role played by this particular resource in the religious, economic and cultural patterns of the relatively higher contemporary and later Southern Mesopotamian cultures.

As a corollary, the coincidence of the end of Ubaid and the termination of the contact-related settlements in Northeastern Arabia is here taken to indicate a transformation in the socio-cultural system which the exchange pattern probably played an important social role.

ANTHROPOLOGY

8 — **Masry, Abdullah Hassan**
Prehistory in Northeastern Arabia : the problem of interregional interaction. University of Chicago, 1973.
196 p., illus., maps.

The basic orientation of this study consisted of a twofold purpose. First to give an outline of prehistory in Northeastern Arabia, an area for which mone has been available hitherto. Second, to examine the developmental sequence of this prehistory within the theoretical context of inter-regional mechanisms of interaction with the dajacent nuclear zone Southern Mesopotamia.

It was established that there were at least three distinguishable major components in the prehistory of Northeastern Arabia :

A. The earliest, a stone-age cultural sequence was found to probles represent the early regional tradition common to east Arabia, and perhaps the interior of the peninsula and which may have lasted into later, perhaps historic period as a period compar-compared to elsewhere in the Near East, (of Braidwood 1970). The stone age sequence in the area of this investigation evidences close similarities to that already known from the Qatar peninsula in east Arabia. Subsistence «Possibly» was based on large mammal hunting as well as wild plant collecting. At the same time, there might we been an equal reliance on marine resource adaptation. Evidence for climatic fluctuations during this period has led to the postulation that these early populations could have probably followed a long range migratory cycle of adaptation which engaged them in frequent contacts with the alluvial valley t othe north. Segments of these populations «very likely» have readjusted their subsistence base as a result of such adaptational, inter-regional contact and become, thes, part of the by population stata — in the alluvium.

B. The second component is, visibly, a consequence of an interaction process, and on the basis of which this investigation was initially proposed. Settlements of this stage bear the imprint of material», i.e., painted pottery from the earliest known Ubaid period» of Southern Mesopotamia ca. late sixth to early fourth millennia B.C.

2. The original economy of the region - e.g., agriculture and pearl fishing and the changes which have come about by the discovery of oil and the resultant new economy.
3. The population and change due to the economic factors.
4. The new phase of life, with particular reference to social services, and transport, communications.
5. The new economy resulting from oil and non-oil industries.
6. Sample studies of recent growth and functions of the most important selected urban centres, with regard to old and new settlements.

The last two chapters contain the conclusion of the study, in which the physical, cultural and economic factors are related to the geography of the Province.

is especially acute in those instances characterized by rapid expansion in many program areas.

The need for trained personnel who can implement community development type programs is perhaps the most important finding of this study. If programs to help the people are to evolve according to the plans now being formulated there can be no delay in development of the trained personnel - it must begin immediately.

7 — **Al-Shuaiby, Abdulla Mansour**
«The Development of the Eastern province» with particular reference to urban settlement & evolution in Eastern Saudi Arabia. Durham University, 1976.
xxviii, 423 p.

Since the discovery of oil in Saudi Arabia in 1938 the face of the country has completely changed. The aim of this thesis is to examine for the first time the change which are observable in the settlements of eastern Saudi Arabia, change attributable to oil. The area chosen is the Eastern Province (the oil region), and a study of this area reflects the scale of changes over the whole of Saudi Arabia.

The Eastern Province was formerly an agricultural area, its economy prior to the advent of oil being dependent on the Oases. Now, most of the agricultural workers have left the land for better paid jobs in the oil industry and associated industries. The first effect of this was to produce a relative decline in the agricultural economy of the region, and secondly, through a massive internal movement of people from the agricultural settlements, produce rapid growth in new settlements near the operations of the oil industry. Thirdly, many immigrants flocked to the Province, drawn by the new economic prospects and a better income, and these migrants settled both in places such as the old cities of Hofuf, Qatfi and Mubarrez as well as in the newly developed towns of Dammam, Al-Khobar, Dhahran, etc.

The thesis comprises six integrally interwoven aspects of the study :-

1. The physical aspect of the Province, from a geographical point of view.

Young adults (15-34), the more favorable the attitude towards community development. (V) The larger the rate of middle -aged (35-54) the more unfavorable is the attitude (Va) Above 35 years, the older the age, the more neutral is the attitude (pacifying effect of age) (VI) The greater the engagement in work (for self or others), the more favorable is the attitude (VII) The more limited is the involvement in Community public life (work factor), the greater the chance for neutral attitude toprevail. (VIII) Contact with or exposure to community development conception and or program is likely to produce favourable attitudes.

Testing of such propositions through emprical research and experimentation is recommended. Implications of both empirical findings and theoritcal propositions are suggested with reference to formulation and application of Social policy Qarawi of the University of Riyadh for making possible my access to the University library.

6 — Nasser, Saleh Ahmad

The Importance of community development in the development program of the Southwest Region of Saudi Arabia. Michigan State University - Department of Resource Development, 1976. xv, 227 p. tab., maps, Diagram.

Many efforts are underway in the Kingdom of Saudi Arabia to improve the level of living of its citizens. These efforts, however, cannot be fully effective unless the people are capable of participating in and sharing responsibility for many of the programs. Community development.

Expansion of the community development program in the Region may have a significantly positive effect by facilitating coordination among the various programs and personnel that are also being implemented in the Region. The lack of coordination is a problem that occurs in all countries irrespective of level of development but

5 — **Mourad, Farouk**

The Attitude of village population in Saudi Arabia toward community development ; a study in the social psychology of development. South California University, 1971.

Community development is a Comprehensive approach of directed social and technical change, the aim of Which is the achievement of a rise in the standard of living of Village population. This Study attempts to (1) explore the attitudes that prevail in a representative village Community toward Community development in its region, and (2) seeks to test relationship between those attitudes and the Sociological variables of age, sex, level of education, and pattern of works.

A sample of 450 individuals was selected, representing the adult population of the village of Daff Zeini in Wadi Fatma A Combination of interview and observation techniques were used in data collection Attitudes were assessed and Classified into the trichotomy of favourable, unfavorable, and neutral. By means of analysis of matrix of interrelated variates trends in the relationships were uncovered. Positive association was established between types of attitude and the investigated variables, thus confirming the research hypotheses. Further, by Summation of modal categories for certain submatrices, the degrees of relationships between the attitude Phenomenon and investigated variables were expressed in the following pattern.

	Education	Sex	Work	Age
Strong ————				Weak
	(272)	(210)	(200)	(199)

On the basis of empirical findings a number of Propositions were formulated, explaining in a trasitional Arab Village Context the above-mentioned relationships : (1) The higher the rate of literacy, the more favourable the attitude toward Socioeconomic developmen.t. 11) The higher the rate of semi-literacy, the more favorable the attitude. (11a) Reading the Quran (a religious behavior in Islamic culture), is associated with the favorable attitude. (111) Male members of the village community are generally identifiable with neutral Position (basically uncommitted). IV) The larger of rate of

attitudes. Changes were most pronounced in the area of traditional attitudes towards the position of woman.

As for the relationship between selected background variables and cross-cultural educational variables, exposure was found to be positively related to marital status and level of education, and negatively related to previous foreign travel. Age was not significantly related to exposure. None of the background variables were significantly related to adjustment.

4 — **Ganoubi, Ahmed Ibrahim.**
Iraq ; a village community in Najd. The University of Hull, 1976.
xv, 278 p. illus., plats. maps.

I would very much like to admit that this acknowledgement does not include all individuals who have helped and encouraged me in my research. Those and others included are in no way responsible for errors and deficincies of my work though they all have contributed in one way or another in a large measure to its merits.

First of all I am very grateful to my supervisor Professor. I. Cunnison for his invaluable help and guidance and also for straightening my English. I am deeply indebted to Dr. Talal Asad for his sincere friendship and intellectual stimulation. My due thanks is to F. Rehfisch for his useful suggestions during many occasions of discussion.

My special thanks and acknowledgement are to H.E. Hasan A. al-Shaikh, the then Minister of Education, and Prince Khalid Ibn Fahd Ibn Khalid, the then Director-General of Students Affairs Abroad, who both made my desire of realising this work possible. My grateful thanks are due to Said Ibn Sa'ad Ibn Said, Director-General of the Department of Economic Research and Statistics of the Ministry of Finance and National Economy, who helped me to obtain government records concerning Council of Ministers' regulations and other helpful materials. Also I should thank hi mfor his continuous friend ship and sincere encouragement. I am indepted to Sultan A. al-Salih of the Saudi Arabian Cultural Bureau, for his help.

SOCIOLOGY

3 — **El-Banyan, Abdullah Saleh**

Cross-cultural education and attitude change : a study of Saudi Arabian Students in the United States. North carolina State **University, 1974.**

119 p.

This study was undertaken to explore the impact of the experience of studying in the United States on the attitudes of Saudi Arabian students toward their traditional cultural values in the areas of traditional attitudes toward the position of woman, family relations, and occupational values (risk versus security of occupational choice and job satisfaction).

The specific objectives of the study were : (1) to delineate specific variables involved in the Saudi Arabian student's experiences in the United States that influence his attitudes toward his traditional cultural values; (2) to analyze the processes through which these variables have their effect ; and (3) to investigate the effect of selected background variables on students' experiences in the United States.

For the analysis of the concept of cross-cultural education, three variables — length of stay in the United States, exposure to the American way of life, and adjustment during the stay in the United States — were selected and three hypotheses were proposed to specify the relationship of these variables to attitude changes.

Data were collected through mailed questionnaires sent to about 700 Saudi Arabian students who were studying in American institutions of higher education during the academic year of 1971-72. The findings of the study were based on the answers of 117 of these students who completed and returned the questionnaire by July 31, 1927, the established cut-off date for accepting more questionnaires.

Analysis of the data indicated that neither exposure nor adjustment had much effect on students' attitudes towards their traditional cultural values. On the other hand, some relationship was revealed between length of stay (length of exposure) and change in students'

PSYCHOLOGY

2 — **Dukhayyil, Abdul-Aziz Abdullah**
The Effect of gradual lengthening of S-on behavioral contrast and the peak-shift. University of Arizona, 1974.
ix, 23 p. diagrams.

The purpose of the present experiment was to test the assumption that the critical factor in errorless training responsible for the absence of behavioral contrast and the peak-shift is the gradual lengthening of S- rather than the absence of errors.

Four groups of pigeons (4 Ss each) were used. In the Early and Late Gradual Groups, the S- was lengthened gradually until its duration equalled that of the S+. In the Early and Late Abrupt Groups, the S— was introduced at full duration from the start. The baseline data were collected either before (in the Late Groups) or after (in the Early Groups) the discrimination training. For the Early Groups the same discrimination task was introduced again after the baseline. In this phase the S— was introduced abruptly even for the Early Gradual Group. The generalization test was given to each subject fifteen days after the S— was first introduced.

The results indicated that on the one hand behavioral contrast was frequently present in all the groups regardless of the experimental condition, but on the other the peak-shift was obtained most frequently in the Late Abrupt Group. Thus, the gardual lengthening of S— had at best an equivocal effect on the absence of behavioral contrast and the peak-shift.

The findings of this study suggest that while the Region has 31 percent of the total population of the country and despite the efforts in social, health, and educational fields, the Region still is confronted with a significant backlog of unmet social needs, education services, and health care delivery system. Self-initiated community efforts are notably missing in much of the Region. These areas, then, constitute the highest priority avenues for enhancement of the living conditions for the people.

It seems reasonably obvious that the agricultural sector is the most likely sector for concentrating development efforts. Here the needs range from agricultural experimentation and infrastructure enlargement to training of agricultural producers in modernized type of farming. Later perhaps the tourism and the manufacturing potentials can be explored in some depth for possible development.

(i) to identify the descriptive methods of Arabic manuscripts ;

(ii) to identify the users of Arabic manuscripts ; and

(iii) to define the needs of the users.

Correcponding to the above, a set of descriptive elements necessary for location and identification purposes was extracted from a complete list, and applied to the descriptive catalogue of Arif Hikmat manuscript collections.

The proposed method of description has been tested by sending a summary of the method to a number of experts, seeking their opinions. The results were encouraging, and the method seems to fit, at least the situation of manuscripts in Saudi Arabia.

aiming to identify and locate important items in the fields of alchemy, algebra, arithmetic, astronomy and astrology, botany, geometry, medicine, and military sciences.

(2) To develop the basic descriptive elements necessary for the identification of Arabic manuscripts and consistent with some practical and simplified measures of cataloguing such material.

The literature survey showed that the profession has been suffering from the uncontrolled situation of Arabic manuscripts. Hundreds of thousands of manuscripts are still widely scattered, uncatalogued, remaining a burden on the libraries, and unknown to researchers and scholars who, most desparately feel the need for extensive compilations of such sources. However, many obstacles have been hindering the cataloguing of Arabic manuscripts, thus making them inaccessible for research consultation. These obstacles were basically known to be the result of following detailed descriptive methods that require a great deal of resources and specialists of high standards.

An analysis of the various representative sample catalogues suggested the following four kinds of methods :

opment is one effort designed to prepare people and areas for a greater measure of effective participation in the many kinds of human and natural resource development efforts now underway or being contemplated.

The Southwest Region was selected for study because, historically, it has been the most isolated area of the country. The Region is losing population through outmigration. Essentially it has a traditional type population relying primarily on agriculture. The national government is taking a special interest in this area.

The lack of many kinds of information and the problems of gaps in data were substantial obstacles to a more specific analysis. However, many accurate government reports are becoming available. Also there are a number of articles in scholarly journals and recent books that can be used in constructing an evaluation of the type attempted in this dissertation. Essentially the hypothesis that guided the investigation was : Community Development can be a significant component in the socio-economic development of the Southwest Region.

LIBRARY SCIENCE

1 — **Tashkandy, Abbas Saleh.**
A Descriptive catalogue of the historical collection of the scientific manuscripts at the library of Arif Hikmat in Medina, Saudi Arabia. University of Pittsburgh, 1974.
iv, 287 P.

1) The bibliographic method

2) The elaborate descriptive method

3) The short title method

4) The simplified descriptive method

Each of these descriptive methods has been discussed, analyzed, and some practical elements have been derived from them for the sake of simplicity in the cataloguing process. In each decision taken, situation of Arabic manuscripts in Saudi Arabia was always kept in view. The vast number of uncatalogued manuscripts cannot be bibliographically controlled unless some practical measures are applied to overcome the overwhelming internal and external problems of Arabic manuscripts.

According to today's picture, the elaborate cataloguing is too difficult and almost impossible to implement. No cataloguer, with all the administrative responsibilities assigned to him, is able to perform the work of detailed description. Furthermore, no library can afford the expense of such a method of detailed bibliographic description.

The short title method, thought proved to be a practical tool for location, has curtailed the basic elements of description to the extent that the usre cannot trace the differences among the various copies of the same work.

In devising his method of description, the author has attempted.

The two major purposes of this study were :

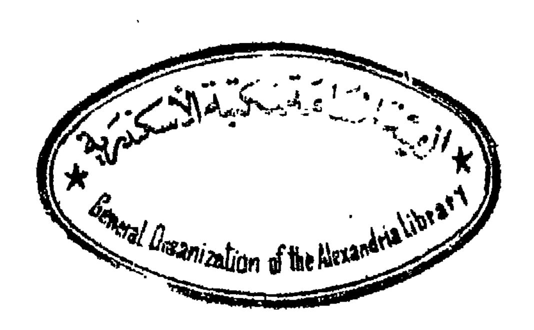
(1) To produce a descriptive catalogue of the scientific Arabic manuscripts in the Library of «Arif Hikmat in Medina, Saudi Arabia,



LIBRARY SCIENCE

SOCIOLOGY





PH. D. SAUDI DISSERTATION ABSTRACTS

prepared by Kamal Mohamed Aly



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